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NASA CR-159556  
PWA-5583-58

(NASA-CR-159556) STUDY OF BLADE ASPECT  
RATIO ON A COMPRESSOR FRONT STAGE Final  
Report, 28 Oct. 1977 - 28 May 1979 (Pratt  
and Whitney Aircraft) 261 p HC A12/MF A01

N80-25333

CSCL 21E G3/07 22351  
Unclas



STUDY OF BLADE ASPECT RATIO ON A COMPRESSOR FRONT STAGE  
FINAL REPORT

by

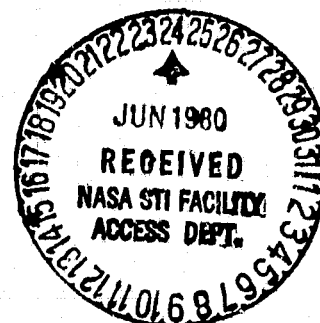
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November 1980

UNITED TECHNOLOGIES CORPORATION  
Pratt & Whitney Aircraft Group  
Commercial Products Division

Prepared for

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
NASA-Lewis Research Center  
Contract NAS3-20809



1. Report No. NASA-CR-159556		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle Study of Blade Aspect Ratio on a Compressor Front Stage, Final Report				5. Report Date November 1980	
				6. Performing Organization Code	
7. Author(s) R.F. Behlke, J.D. Brooky, and E. Canal, Jr.				8. Performing Organization Report No. PWA-5583-58	
9. Performing Organization Name and Address  United Technologies Corporation Pratt & Whitney Aircraft Group - CPD East Hartford, Connecticut 06108				10. Work Unit No.	
				11. Contract or Grant No. NAS3-20809	
12. Sponsoring Agency Name and Address National Aeronautics and Space Administration Washington, D.C. 20546				13. Type of Report and Period Covered Contractor Report	
				14. Sponsoring Agency Code	
15. Supplementary Notes NASA Project Manager: Mr. L.J. Herrig, Fluid Systems Components Division - Fan and Compressor Branch, NASA-Lewis Research Center, Cleveland, Ohio 44135. P&WA Program Manager: Mr. N.T. Monsarrat.					
16. Abstract  A single stage, low aspect ratio compressor with a 442.0 m/sec (1450 ft/sec) tip speed and a 0.597 hub/tip ratio typical of an advanced core compressor front stage was tested. The test stage incorporated an inlet duct which was representative of an engine transition duct between fan and high pressure compressors.  At design speed, the rotor-stator stage achieved a peak adiabatic efficiency of 86.6 percent at a flow of 44.35 kg/sec (97.8 lbm/sec) and a pressure ratio of 1.8. Surge margin was 12.5 percent from the peak stage efficiency point.					
17. Key Words (Suggested by Author(s))  Single-Stage, Core Compressor, Front Stage, Low Aspect Ratio Multiple-Circular-Arc Airfoil Sections			18. Distribution Statement  Unclassified - Unlimited		
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 268	
22. Price*					

\* For sale by the National Technical Information Service, Springfield, Virginia 22161



# PRATT & WHITNEY AIRCRAFT GROUP

Commercial Products Division

East Hartford, Connecticut 06108

In reply please refer to:  
NTM:K:kc -8122m- Eng. 2H  
PWA-5583-58

18 June 1980

To: National Aeronautics and Space Administration  
Lewis Research Center  
21000 Brookpark Road  
Cleveland, Ohio 44135

Attention: Mr. L. W. Schopen, Contracting Officer, MS 500-313

Subject: Distribution of Final Report (CR-159556) for Contract NAS3-20809, Study of Blade Aspect Ratio on a Compressor Front Stage

Reference: Letter: Mr. L. W. Schopen to Mr. N. T. Monsarrat; 5/5/80 (rec. 5/9/80)

Enclosure: Final Report

The subject report has been revised and is being distributed in accordance with the instructions and distribution list included with the reference letter. Distribution of this report completes the requirements of Contract NAS3-20809.

Sincerely yours,

UNITED TECHNOLOGIES CORPORATION  
Pratt & Whitney Aircraft Group  
Commercial Products Division

*N. T. Monsarrat*

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## Foreword

The work described herein was performed under NASA Contract NAS-3-20809 by Pratt & Whitney Aircraft Group, Commercial Products Division, United Technologies Corporation, Hartford, Connecticut under the direction of Mr. N.T. Monsarrat, Program Manager. The NASA Project Manager was Mr. L. J. Herrig, NASA-Lewis Research Center, Fluid Systems Components Division, Fan and Compressor Branch. The work was performed during the period 28 October 1977 through 28 May 1979. The authors wish to acknowledge the participation and valuable contributions in the fulfillment of this contract by Ms. K. Fernandes and Mr. D. Lee.

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# STUDY OF BLADE ASPECT RATIO ON A COMPRESSOR FRONT STAGE FINAL REPORT

by

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## 1.0 SUMMARY

Tests were conducted on a single stage, low aspect ratio compressor having a tip speed of 442.0 m/sec (1450 ft/sec), a hub/tip ratio of 0.597, and a rotor aspect ratio of 1.3. The test rig included an inlet duct representative of an engine transition duct between fan and high-pressure compressor. To permit low speed matching adjustments, the stage incorporated variable inlet-guide-vanes and stator vanes. The purpose of the tests was to determine detailed aerodynamic performance and demonstrate that for a tip speed and hub/tip ratio typical of an advanced core compressor front stage, the use of low aspect ratio blading can permit high levels of blade loading to be achieved at an acceptable level of efficiency.

At design speed and pressure ratio the rotor-stator stage achieved an adiabatic efficiency of 86.6 percent at a flow of 44.35 kg/sec (97.8 lbm/sec) with a 12.5 percent surge margin. Test efficiency was 1.9 percentage points lower than the design goal; test flow was 4.7 percent under goal at the rotor peak efficiency point, while surge margin exceeded the goal by 2.5 percent (see summary Table I). Rotor tip loading (Diffusion factor) at design speed was in excess of 0.65 while stator maximum D factor was close to 0.6. The aggressive performance goals of this stage were not met; however, the intent of demonstrating high loading capability of low aspect ratio blading in the adverse front stage environment, with an acceptable efficiency level, was accomplished.

Testing at 50 and 70 percent design speed was also conducted with inlet-guide-vane and stator at both the design positions and at closed stagger settings to simulate the operation of a multistage high-pressure compressor. The restaggers did not have an effect on the part-speed surge line.

Traverse data taken at rotor inlet and stator exit were employed to generate spanwise and blade element profiles for both the rotor and stator. These data indicate that performance in the region of the rotor tip was on the stall side of optimum incidence for all test points, this region thus being the source of the deficiencies in efficiency and flow.

Analyses of the test results indicate that the incorrect selection of design flowpath blockage was the primary cause of the performance shortfall of this stage.

TABLE I  
SUMMARY OF TEST RESULTS  
DESIGN SPEED AND STAGGER ANGLE

	<u>Design</u>	<u>Test</u>
<u>Peak Stage Efficiency</u>		Point 104 -10 -02
Stage Adiabatic Efficiency, %	88.5	86.6
Corrected Inlet Flow		
Rotor Leading Edge, kg/sec (1bm/sec)	47.28 (104.2)	44.35 (97.8)
Stage Pressure Ratio	1.805	1.800
Surge Margin, %	10.0	12.5
<u>Peak Rotor Efficiency</u>		Point 104 -10 -01
Rotor Adiabatic Efficiency, %	92.1	90.1
Corrected Inlet Flow		
Rotor Leading Edge, kg/sec (1bm/sec)	47.28 (104.2)	45.14 (99.5)
Stage Pressure Ratio	1.805	1.769
Surge Margin, %	10.0	16.6

## 2.0. INTRODUCTION

Future commercial aircraft powerplants, in order to reduce fuel consumption, will require compressors with higher overall pressure ratios and efficiencies than those currently in use. This implies the use of higher tip speeds and higher stage loading levels (that is, higher stage pressure rise). Research on advanced compressor stages has shown that relatively low aspect ratio blading can provide high levels of loading while maintaining high efficiency and adequate stability margin. NASA sponsored programs have provided design background data for low aspect ratio compressors having hub/tip ratios and tip speeds typical of middle and rear stages of high-pressure compressors. It is the intent of this program to provide such design data for a low aspect ratio front stage.

The tip speeds required for a highly loaded front stage result in transonic and supersonic relative Mach numbers into the rotor, a condition similar to that encountered in fans. The design of highly loaded, high aspect ratio blading for the transonic/supersonic regime has been explored extensively and successfully under various NASA fan contracts (references 1, 2, and 3). This fan experience was used in the design of the low aspect ratio front stage for this program.

### 3.0 APPARATUS

#### 3.1 COMPRESSOR STAGE

A low aspect ratio, single stage compressor was designed to be representative of the first stage of an advanced multistage, high-pressure compressor. A detailed description of the aerodynamic and mechanical design of the low aspect ratio rotor and stator is given in reference 4.

Design parameters, as listed in Table II, were chosen to be compatible with existing rig hardware that accurately simulates engine conditions. This hardware, as shown in Figure 1, includes an offset inlet transition duct which incorporates a preswirl vane to simulate fan stator root or low-pressure compressor exit flow, engine type intermediate case struts, and a variable stagger inlet-guide-vane.

TABLE II  
DESIGN PARAMETERS

Corrected Speed, rpm	12,210
Rotor Tip Speed, m/sec (ft/sec)	442.0 (1450)
Corrected Flow, kg/sec (lbm/sec)	47.28 (104.2)
Corrected Weight Flow Per Unit Annulus Area, kg/m <sup>2</sup> -sec (lbm/ft <sup>2</sup> -sec)	195.3 (40.0)
Rotor Pressure Ratio	1.845
Stage Pressure Ratio	1.805
Rotor Adiabatic Efficiency, %	92.1
Stage Adiabatic Efficiency, %	88.5
Tip Diameter, meters (inches)	0.6901 (27.2)
Hub/Tip Ratio at Rotor Inlet	0.597
Rotor Tip Solidity	1.26
Rotor Aspect Ratio*	1.30
Stator Hub Solidity	1.426
Stator Aspect Ratio*	1.42
Stator Average Exit Flow Angle, degrees	16.0
Number of Rotor Blades	24
Number of Stator Vanes	30

\*Aspect Ratio = ratio of (average airfoil length)/(midspan chord)

The high tip speed and inlet specific flow of the rotor were required to achieve the desired stage pressure ratio of 1.805, which, while aggressive, is representative of front stages of advanced core compressors. Stator exit specific flow and absolute air angle were chosen to be realistic values to match assumed downstream high-pressure compressor stages. The axial spacings between the inlet-guide-vane, rotor, and stator were designed to be sufficient for radial and circumferential probe traversing.

Because the range of rotor inlet relative Mach number from root to tip is 0.97 to 1.32, the rotor was designed with multiple circular arc (MCA) blade sections, typical of fan design practice. Stator vane sections were also designed as MCA sections, approaching double circular arc (DCA) sections toward the outer portion of the span. The range of stator inlet absolute Mach number was 0.88 to 0.69 from root to tip. The reaction level of the stage was set at 0.71 to ensure that the stator inlet absolute Mach number remained below 0.9. Both rotor and stator losses were estimated using a combination of fan and high-pressure compressor experience.

### 3.2 TEST FACILITY

The test program was conducted in a versatile compressor test facility shown in Figure 2. This test facility is equipped with a synchronous motor with a multi-ratio gearbox to provide speed range capability. The inlet airflow is drawn through filters prior to a flatplate orifice, then through an inlet plenum to provide a uniform total pressure and temperature profile to the test rig. The airflow is exhausted from the rig into a toroidal collector through a set of various size valves, providing coarse and fine adjustment of backpressure, or throttling, for the test compressor, and then through exhausters. The low pressure provided by the exhausters was also used to vent the rotor front cavity. Strain-gage instrumentation signals from the rotor were transmitted via telemetry to recording equipment.

### 3.3 INSTRUMENTATION AND CALIBRATION

#### 3.3.1 Overall and Blade Element Instrumentation

Airflow to the stage was measured by means of a flatplate orifice designed to the specifications defined by the International Organization for Standards. All orifice related instrumentation was installed per Power Test Code 19.5, 4-1959. This system provided a flow rate measurement accurate to within  $\pm 1.0$  percent.

The rotor speed was measured using an impulse type pickup through a frequency-to-DC converter. The measurement accuracy was within  $\pm 0.1$  percent of the indicated speed.



All temperatures were measured with Chromel-Alumel Type K thermocouples with an individual wire calibration applied to each sensor. Sample elements from the temperature pole rakes were calibrated over the expected Mach number range to determine recovery factor variations with yaw and pitch angle. Variations of the recovery correction with pressure were applied as noted in NASA Technical Note 3766 and complemented by results of testing at Pratt & Whitney Aircraft. Overall root mean square temperature accuracy was estimated to be  $\pm 0.28\text{K}$  ( $\pm 0.50\text{F}$ ).

Measurements of airflow angle were obtained by radially traversing 15-degree included angle wedge probes. Total pressure recovery and yaw angle deviations were calibrated as functions of Mach number and pitch angle. The measurement accuracy of the air angle probe system was  $\pm 0.50$ .

All pressures from pole rakes and static pressure taps were measured with transducers on scanivalves and recorded by an automatic data acquisition system. The accuracy of the pressure measurements was  $\pm 0.1$  percent of the full scale value for that transducer.

Typical instrumentation is shown in Figure 3, and the axial and circumferential positions of the instrumentation are shown in Figure 4.

Instrumentation for measuring overall and blade element performance is listed in Table III.

TABLE III  
OVERALL PERFORMANCE AND BLADE ELEMENT INSTRUMENTATION

Instrument Plane Location	Parameter Measured	Type and Quantity
Station 0 (Inlet Flow Measuring Orifice)	$P_s$	4 static taps downstream and 4 static taps upstream of inlet orifice
	Delta P	2 delta P transducers sensing the differential pressure between the upstream and downstream orifice pressures
	$T_T$	6 total temperature thermocouples located upstream of the orifice
Station 1 (Plenum Chamber)	$T_T$	10 bare wire thermocouples located in a plane in the plenum chamber and distributed equally in the radial and circumferential direction

TABLE III (Cont'd)

Instrument Plane Location	Parameter Measured	Type and Quantity
Station 2 (Rig Inlet Duct Upstream of Struts)	$P_s$	6 static pressure taps circumferentially equally spaced on the plenum wall
	$P_T$	4 ten-element sensor rakes to pro- vide readings at ten radial posi- tions (6.9, 18.5, 30, 40, 50, 60, 70, 78, 87, & 95 percent span)
	$P_s$	3 outer and 3 inner wall static pressure taps
Inlet-Guide-Vane Leading Edge	$P_s$	4 outer and 4 inner wall static pressure taps at leading edge of Inlet-Guide-Vane
Inlet-Guide-Vane Trailing Edge	$P_s$	4 outer and 4 inner wall static pressure taps at the trailing edge of Inlet-Guide-Vane
Station 3 (Rotor Inlet)	$P_T$	2 nine-element sensor rakes* to provide readings at nine radial positions (5, 10, 15, 30, 50, 70, 85, 90 & 95 percent span)
	$T_T$	2 nine-element sensor rakes* to provide readings at nine radial positions (5, 10, 15, 30, 50, 70, 85, 90 & 95 percent span)
	$P_T$ , Air Angle, Radius	2 wedge-type traverse probes* positioned to measure at 9 radial locations (5, 10, 15, 30, 50, 70, 85, 90 & 95 percent span)
	$P_s$	4 outer* and 4 inner wall static pressure taps located in the same plane as the $P_T$ and $T_T$ rakes
Rotor Leading Edge	$P_s$	4 outer wall static pressure taps at the leading edge of the rotor

\* Located in a circumferential traverse ring.

TABLE III (Cont'd)

Instrument Plane Location	Parameter Measured	Type and Quantity
Rotor Trailing Edge	$P_s$	4 outer wall static pressure taps at the trailing edge of the rotor
Station 4 (Rotor Exit)	$P_T$	2 nine-element sensor rakes* to provide readings at nine radial positions (5, 10, 15, 30, 50, 70, 85, 90 & 95 percent span)
	$T_T$	2 nine-element sensor rakes* to provide readings at nine radial positions (5, 10, 15, 30, 50, 70, 85, 90 & 95 percent span)
	$P_T$ , Air Angle, Radius	2 wedge-type traverse probes* positioned to measure at 9 radial locations (5, 10, 15, 30, 50, 70, 80, 90 & 95 percent span)
	$P_s$	4 outer* and 4 inner wall static pressure taps located in the same plane as the $P_T$ and $T_T$ rakes
Stator Leading Edge	$P_s$	4 outer and 4 inner wall static pressure taps at the leading edge of the stator
Stator Trailing Edge	$P_s$	4 outer and 4 inner wall static pressure taps at the trailing edge of the stator
Station 5 (Stator Exit)	$P_T$	4 nine-element sensor rakes* to provide readings at nine radial positions (5, 10, 15, 30, 50, 70, 85, 90 & 95 percent span)
	$T_T$	4 nine-element sensor rakes* to provide readings at nine radial positions (5, 10, 15, 30, 50, 70, 85, 90 & 95 percent span)
	$P_T$ , Air Angle, Radius	2 wedge-type traverse probes* positioned to measure at 9 radial locations (5, 10, 15, 30, 50, 70, 85, 90 & 95 percent span)

\* Located in a circumferential traverse ring.

TABLE III (Cont'd)

Instrument Plane Location	Parameter Measured	Type and Quantity
	$P_s$	4 outer* and 4 inner wall static pressure taps located in the same plane as the $P_T$ and $T_T$ rakes
Station 6	$P_s$	6 outer and 6 inner wall static pressure taps.

\* Located in a circumferential traverse ring.

### 3.3.2 Special Instrumentation

In addition to the static pressure taps installed for overall and blade element data, taps were positioned circumferentially at the rotor trailing edge and used to determine the extent of any back pressuring of the rotor by the pole rakes at the rotor and stator exit.

Stall-indication instrumentation was installed at the leading and trailing edge of the rotor blade row. This instrumentation consisted of a high response thermocouple at the outer wall of the flowpath at the rotor leading edge and static pressure taps with close mounted pressure transducers at the rotor trailing edge. Both sensors were connected to the test stand safety monitoring system, which automatically sequenced the compressor to stall recovery. This system was used along with the automatic data recording system to identify the point of compressor instability.

Strain gages were installed on selected blades, vanes, and pole rakes to detect excessive vibratory or flutter stresses.

Special instrumentation for measuring both aerodynamic and mechanical characteristics is listed in Table IV.

TABLE IV

### SPECIAL INSTRUMENTATION

Instrument Plane Location	Parameter Measured	Type and Quantity
Rotor Leading Edge	$T_T$	2 high response bare wire thermocouples near the outer wall

TABLE IV (Cont'd)  
SPECIAL INSTRUMENTATION

Instrument Plane Location	Parameter Measured	Type and Quantity
Rotor Trailing Edge	$P_s$	6 outer wall static pressure taps at the rotor trailing edge positioned to sense rotor back-pressure effects due to the downstream pole rakes
	$P_s$	2 static pressure taps on outer wall with close mounted transducers
Stator Leading Edge	$P_s$	1 outer wall static pressure tap at the stator leading edge positioned to sense rotor back-pressure effects due to the downstream pole rakes
Station 3, 4, & 5	Stress	2 strain gages on a temperature and pressure pole rake
Inlet-Guide-Vane	Stress	2 strain gages on each of 3 vanes
Rotor	Stress	16 strain gages distributed on each of 8 blades 2 strain gages on the disk
Stator	Stress	14 strain gages distributed on each of 4 vanes

#### 4.0 PROCEDURES

##### 4.1 TEST PROCEDURES

##### 4.1.1 Shakedown Tests

Shakedown tests were conducted to establish the mechanical integrity of the test rig, to locate stress boundaries that might limit the operating range over which tests could be conducted, to determine the effect of the rotor exit probes on the stage performance, and to verify the performance of the instrumentation and data reduction system. The shakedown tests were performed with the inlet-guide-vane and stator at the design stagger positions.

The stress survey conducted during the shakedown tests, covering a range of speeds from 50 to 105 percent of design, indicated no integral order blade stresses exceeding  $+4.31 \times 10^5 \text{ N/m}^2$  ( $+9.0 \times 10^3 \text{ lbf/in.}^2$ ) in any mode. Subsequent testing indicated that stresses were essentially unaffected by inlet-guide-vane or stator angle position, probe configuration (fixed or traversing), stage pressure ratio, or airflow rate. Flutter (nonintegral vibration) was not observed at any condition. All other mechanical monitoring instrumentation indicated that the rig was operating within established limits.

Review of the overall performance data from the shakedown test indicated that the rotor exit probes were causing a severe back pressure on the rotor and affecting its performance. These probes were removed for all performance testing. See Section 4.2.1 for a detailed discussion of this rotor exit probe back pressure effect.

#### 4.1.2 Overall and Blade Element Performance Tests (Design Vane Stagger)

Overall and blade element performance data were acquired at 100, 95, 90, 105, 70, and 50 percent design corrected speed in the order listed. Data points were taken between the maximum flow attainable and the stability limit as represented by rotating stall or surge. Each data point consisted of: 1) a 25-point circumferential traverse that covered one inlet-guide-vane gap at the rotor inlet and two stator vane gaps at the stator exit, measuring total pressure and temperature, and 2) a radial traverse at each measuring station to acquire air angle data with the probe positioned circumferentially in a minimum shear flow region.

A check point was taken at 100 percent design corrected speed before the start of each phase of the test program. The check point was used to monitor the condition of the instrumentation and to check for possible deterioration in compressor performance. As a result a reduction in flow was uncovered during the test program. Subsequent investigation revealed that the inlet-guide-vane had closed from its design setting, the pins holding the unison ring in position having bent during the intentional surging of the compressor. Further review of the data indicated that the inlet-guide-vanes had started to close after the first surge at 100 percent design corrected speed and that the largest change had occurred after the 105 percent design corrected speed surge. Because of this vane movement, an hydraulic actuation system was installed which provided remote control of vane stagger. Data were taken at all speeds with the vanes reset to the design stagger position in order to provide a calibration of the effects of vane slippage.

#### 4.1.3 Tests with Vanes Restaggered for Low Speed Operation

Overall and blade element performance data were obtained at 70 and 50 percent of design corrected speed with the inlet-guide-vane and stator staggered to  $43^\circ$  and  $25^\circ$  closed, respectively. Flow measurement

accuracy, as a result of the low inlet flows anticipated, was maintained by the installation of a smaller diameter inlet flow measuring orifice.

Data points were taken between the highest flow and the stability limit as defined by rotating stall. At these low flow conditions, the automatic stall detection devices were not sufficiently sensitive to trigger the recovery and data acquisition system. The high response thermocouple at the rotor inlet was monitored on the test facility safety system, and when a significant change in the temperature level was observed, this change was utilized as the indication of the point of instability.

## 4.2 DATA REDUCTION TECHNIQUES

### 4.2.1 Data Reduction Program

An automated data reduction and analysis program was used to condition, organize, and process the raw data into engineering units and to perform circumferential mass averaging for use in subsequent flowfield synthesis computer programs.

All steady state performance data were automatically recorded in millivolts and converted to engineering units. Thermocouple signals were converted to temperature measurements; wire calibrations were used for individual sensors. These temperature measurements were converted into total temperature using calibrations of total temperature recovery versus Mach number for individual sensors and a pressure level correction. Total and static pressure signals were converted to pressure measurements by means of scanivalve transducer calibrations. Wedge probes were used to measure airflow angle, which was corrected for yaw deviation by means of a Mach number calibration for individual probes.

Circumferentially mass-flow averaged total temperatures and total pressures were calculated for each selected radial position by means of measured circumferential distributions of total pressure and temperature. A constant circumferential static pressure obtained by linearly interpolating between static pressure measurements from inner and outer wall static pressure taps was utilized in the determination of dynamic head at each radial position.

### 4.2.2 Traverse Data Considerations

Because of the presence of an engine type inlet duct, rotor exit probes that back pressured the rotor, and some anomalies observed in the data, special care was given to the choice of variables for inclusion in traverse stage and rotor data reduction procedures to ensure the adequate isolation of stage performance. These considerations are discussed below.

### Rotor Inlet

Rotor inlet conditions were defined by circumferentially traversed total pressure pole rakes and radially traversed air angle probes at Station 3 (rotor inlet) and by plenum chamber total temperature.

A total pressure traverse of the rotor inlet plane (Station 3) was utilized to isolate rotor and stage pressures from the losses generated by the representative engine transition duct. Traverse probes were positioned to assess wakes of the inlet-guide-vanes, struts, and station 2 probes at nine radial positions ranging from 5 to 95 percent span. The typical sample traverse presented in Figure 5 shows wake measurements in both a strut and a nonstrut sector at midspan. Wakes, as shown in Figure 5, were clearly defined and consistent, permitting a weighting of mass-flow average wake loss by the number of vanes, struts, and probes respectively. Loss was defined in this manner at each span for a sampling of data points covering the range of test flows and utilized to isolate rotor and stage pressure ratio for all points presented.

The airflow angle at the rotor leading edge was measured by two radially traversed wedge probes positioned circumferentially between inlet-guide-vanes. The flow angle input into the data reduction program was the arithmetical average of the two probes at each of the nine radial positions.

### Rotor Exit

The test stage was initially instrumented with total pressure and temperature pole rakes and flow angle probes at the rotor trailing edge (Station 4) instrumentation plane. These probes caused an excessive back pressure on the rotor and were removed for the performance testing. This excessive back pressure was identified by examining rotor trailing edge static pressure distortion. Static pressure taps were located at 90° and 353°, positions most likely to be influenced by Station 4 probe back pressuring, and at 202° and 304°, positions less likely to be so influenced. Figure 6 shows a plot of these rotor exit plane static pressures versus probe traverse position as the Station 4 pole rakes were traversed. The rotor trailing edge probes caused a local increase in static pressure equal to 34 percent of the dynamic pressure head. Figure 7 is a plot of these same static pressure taps at a similar data point but with the Station 4 probes removed. The maximum distortion level for this point has dropped to five percent of the dynamic pressure head, caused by a Station 3 pole rake passing the 90° position during traverse. The rotor discharge probes were removed for the bulk of the performance testing, and rotor discharge conditions were determined from stage discharge measurements, as discussed below. Overall and spanwise performance plots are presented in a subsequent section for three sample points with the rotor traverse probes installed to permit a comparison with stator traverse based results.



### Stator Exit

Four temperature pole rakes and four pressure pole rakes, each with nine radial elements, were traversed across two stator vane gaps for stage exit temperature and pressure. These probes were positioned so that the total circumferential traverse of the four probes would fully measure the effects of inlet probes, struts, and the inlet-guide-vane wakes. Figures 8 and 9 are typical circumferential profiles of the pressure and temperature distributions at the stator trailing edge station. At this station the appearance of the wakes from the inlet case struts and the inlet-guide-vanes is no longer typical, having undergone considerable mixing. However, the effects of the upstream wakes are evident as variations in total pressure and total temperature levels in regions between the stator wakes. Therefore, the arithmetic average of the highest midgap values from each of the eight stator gaps traversed by the total pressure pole rakes was chosen to represent the freestream pressure for use as the rotor-exit/stator-inlet total pressure at each span location. For stator exit conditions the total pressures and total temperatures for each probe were circumferentially mass flow averaged, and the arithmetic average for the four probes at each of the nine span locations was input into the data reduction program to represent stator exit conditions.

Stator exit airflow angles were measured by two radially traversed wedge probes positioned circumferentially between stator wakes. The flow angle input into the data reduction program was the arithmetic average of the two probes at each of the nine radial positions.

#### 4.2.3 Flowfield Analysis

Overall and blade element performance parameters were determined by performing an analysis of the stage flowfield. An axisymmetrically averaged model of the flowfield was produced utilizing measured traverse results as input to a streamline computer program, with boundary conditions based on test data. This computer program solves the equations of continuity, energy, and radial equilibrium using the streamline curvature technique, including enthalpy and entropy gradient terms and assuming axisymmetric flow. The inputs into the computer program, as listed in Table V, included measured temperatures, pressures, and airflow angles as well as a flow blockage factor derived from measured wall static pressure taps.

TABLE V  
PARAMETERS INPUT TO FLOWFIELD PROGRAM

Location	Parameters
Compressor Inlet (Station 1)	1) Corrected mass flow 2) Corrected rotor speed

TABLE V (Cont'd)

Rotor Inlet (Station 3)	<ol style="list-style-type: none"> <li>1) Total pressure ratio versus radius</li> <li>2) Absolute air angle versus radius</li> <li>3) Constant radial blockage factor</li> </ol>
Location	Parameters
Rotor Exit (Station 4)	<ol style="list-style-type: none"> <li>1) Total pressure ratio versus radius*</li> <li>2) Total temperature ratio versus radius*</li> <li>3) Constant radial blockage factor</li> </ol>
Stator Exit (Station 5)	<ol style="list-style-type: none"> <li>1) Total pressure ratio versus radius</li> <li>2) Total temperature ratio versus radius</li> <li>3) Absolute air angle versus radius</li> <li>4) Stator free stream total pressure ratio versus radius**</li> <li>5) Constant radial blockage factor</li> </ol>

\*Input for only selected data points.

\*\*Used for rotor pressure ratio when Station 4 instrumentation was not installed.

Analysis of the test results showed that a single blockage factor could be selected at specific axial stations to closely represent both inner and outer wall static pressure measurements over the entire flow range of the testing. In Figure 10 these blockage factors (solid line) are compared with those assumed in the design (dashed line); there is a considerable difference between the test and design blockages.

Measured inlet orifice flow was compared with calculated integrated mass flow using measured pressures, temperatures, and air angles. Agreement was found to be within five percent, providing a check on the validity of the measurements used for performance calculations.

All static pressure distributions and air angles behind the rotor were calculated by the streamline flowfield computer program. Aerodynamic conditions at the blade leading and trailing edges were calculated by translating the measured data from the instrument plane along streamlines to the blade edges, based on conservation of momentum. Blade element parameters were calculated for airfoil sections lying on conical surfaces defined by the intersection of design streamlines and the blade edges. Calculations were made on design streamlines passing through the rotor trailing edge at 5, 10, 15, 30, 50, 70, 85, 90, and 95 percent of the passage height. In addition to the blade element parameters calculated using the definitions in Appendix B, the output of the flowfield analysis program includes overall performance of the rotor and stator. Blade element performance data for the design stagger angle and low speed restaggered tests are tabulated in Appendices C, D, and E. Symbols are defined in Appendix A.

## 5.0 RESULTS AND DISCUSSION

### 5.1 OVERALL PERFORMANCE

#### 5.1.1 High Speed Performance--Design Inlet-Guide-Vane Stagger Angle

Stage performance and rotor overall performance are presented in Figures 11 and 12, respectively. Small variations in the inlet-guide-vane angle from design occurred during the test and are indicated in the legend to each figure. The effects of these variations can be seen to be small by comparing with the check points (hexagonal symbols) during which the inlet-guide-vane angles were hydraulically controlled. Analytical evaluation of overall performance was based on presurge data points at 100 percent speed, which were taken prior to any variation in inlet-guide-vane angle.

Stage and rotor flow and efficiency were below design goals, while surge margin exceeded goal. The efficiency of the stage in the post test check points dropped 0.5 percentage points (Figure 11), and the rotor-alone efficiency showed no change, suggesting that the loss breakdown from stage to rotor could not be resolved to the level of accuracy ( $\pm 0.25$  percent) required to show this effect. The efficiency drop from initial test to post test was most likely caused by the accumulated effects of deterioration and rotor rub-strip wear as well as dirt accumulation.

Wide open discharge flow and pressure ratio at speeds above 70 percent of design were limited by choking in the stage exit duct downstream of the stator. Because of this choking, all stage operation at 100 and 105 percent design speed occurred slightly above the design operating line. During the presurge tests with the inlet-guide-vanes at design setting, the maximum corrected flow at the rotor leading edge at design speed was 45.14 kg/sec (99.5 lbm/sec), which was 4.7 percent below the design flow of 47.28 kg/sec (104.2 lbm/sec).

Peak stage adiabatic efficiency at design speed was 86.6 percent, which was 1.9 percentage points below the design goal of 88.5 percent. Peak efficiency occurred near the design pressure ratio, but 6.7 percent below design flow. At 105 percent design speed, peak stage efficiency was 86.1 percent.

The performance maps indicated that the rotor was responsible for the stage efficiency not meeting design goals. Peak rotor efficiency at all speeds was at the choke flow condition, indicating that the rotor was always operating on the stall side of minimum loss. Peak rotor adiabatic efficiency at design speed was 90.1 percent, which was two percentage points below the design goal of 92.1 percent. At 95 percent of design speed, peak rotor efficiency was 90.8 percent. At 105 percent of design speed, peak rotor efficiency was 89.8 percent. An analysis of fundamental causes for the deficit in rotor performance relative to design is presented in Section 5.2.1.

At design speed, surge margin from the peak stage efficiency point was 12.5 percent, and from the design operating line it was 19 percent. These compare with a design surge margin of 10 percent. The 105 percent speedline at an inlet-guide-vane angle of  $-20^\circ$  would have passed through the design point if stage choking had not limited its range. At 105 percent speed the surge margin from the design point was 19 percent.

#### 5.1.2 Probe Effects on Overall Performance

The wall static pressure taps at the stator leading and trailing edges were used to assess the influence of the stator exit pole rakes on the flowfield. The wall static pressure response to the circumferentially traversed pole rakes is shown in Figure 13. The taps were fixed at the stator midchannel position, and the pole rakes were traversed across two vane gaps. However, in order to facilitate understanding, Figure 13 is shown as if the pole rakes were fixed and static pressure was measured by multiple taps in the case. The resulting measured local pressure distortion at the stator leading edge was 10 percent of the dynamic pressure head. The stator exit pole rakes, which did not back pressure the rotor static pressure taps significantly as did the rotor exit pole rakes, probably had only a minor effect on rotor and stage total pressure and temperature.

The wedge probes used to measure stator trailing edge air angle were located on the edge of the static pressure distortion at the stator trailing edge and in the same vane gap as the stator leading edge distortion, as shown on Figure 13. Because of the close proximity of the wedge probes to the flowfield distortion, the validity of the sensitive air angle measurement is questionable, and a potential flow analysis of the stator-probe flowfield confirmed that the air angle could be increased significantly at the wedge probe location because of pole rake blockage. It was concluded that these air angle results should be disregarded.

Probe area blockage at the instrumentation planes was three percent of the annulus area at the rotor leading edge and five percent at the stator trailing edge. This blockage contributed significantly to the choking of the rig exit duct, preventing the stage from operating on the design operating line at high speed.

The pressure wakes from the Station 2 probes (intermediate case strut leading edge) were measured by the traverse probes at the rotor leading edge and have been included in the Station 3 pressure averages. The stator exit probes were located to miss the pressure wakes from the rotor leading edge probes. These wakes, however, traveled through the stage and may have had an effect. The impact of these wakes can be estimated based on the geometrically similar Station 2 probes. Adjusting the Station 2 probe pressure loss for the Mach number difference between Station 2 and the rotor leading edge station, Station 3, resulted in an estimated 0.8 percent total pressure and flow

loss from these probes. The performance instrumentation was located so as to be free of these probe wakes and should not have been directly affected by them. The probe blockage, however, could have some secondary effect on rotor performance outside of the wake region.

Rotor and stage overall performance with rotor trailing edge traverse probes installed is presented in Figure 14. Stator exit traverse readings show that the rotor and stage efficiency and pressure ratio were depressed at least three percentage points relative to their performance with rotor traverse probes removed. The rotor exit traverse probes indicated a more severe (eight percentage points) drop in efficiency, Figure 14, presumably because they were in the region of maximum disturbance. These rotor traverse probes also showed an increase in pressure ratio relative to the average of peak total pressures established by the stator exit probes, further evidence of their back pressuring. The impact of these rotor exit probes was obviously quite severe, especially in the region of measurement, and resultant test values were considered suspect and not used in establishing performance.

### 5.1.3 Low Speed Restaggered Performance

Restaggering the inlet-guide-vane  $43^\circ$  and the stator  $25^\circ$  closed did not significantly change the surge line and caused a large drop in efficiency at 50 percent and 70 percent speed, relative to that demonstrated with design stagger angles. Stage and rotor performance at the closed staggers are shown on Figures 15 and 16 compared with low speed tests at design stagger. Performance details for this configuration will be discussed later.

## 5.2 BLADE ELEMENT PERFORMANCE

### 5.2.1 Comparison of Spanwise Performance With Design Expectation

The most significant differences between test data and design intent occurred in the supersonic region of the rotor. The following section compares spanwise design and test performance parameters of rotor and stator and relates the deficit to differences between the assumed and demonstrated flowpath blockages. The spanwise performances of the rotor and stator are presented in Figures 17 through 34. Two data points typifying near design performance--the peak rotor efficiency point, which is also nearest the design operating line (point number 104-10-01), and the peak stage efficiency point, which is nearest to design pressure ratio (point number 104-10-02)--were chosen for comparison. These points were at the nominal inlet-guide-vane angle and were acquired before the stage was surged.

Stage temperature ratio, Figure 17, was lower than design at the hub and higher than design at the tip, indicating a work input profile slightly skewed from design. The stage and rotor pressure ratio

profiles are given in Figures 18 and 19. The most significant difference between test and design for these figures is the greater drop in test pressure ratio at the tip. Stage and rotor efficiencies, Figures 20 and 21, were lower than design outboard of 30 percent of span, which was the supersonic region of the blade.

Rotor inlet absolute air angle, Figure 22, was about five degrees higher than design at the hub and near design at the tip. Rotor incidence, Figure 22, was higher than design by varying amounts along the span. This skewed incidence relative to design was partly caused by the larger than design rotor leading edge air angle at the hub and, more significantly, by the difference in flowpath blockages deduced from the test data and those assumed in the design. An analytical study showed that using test flowpath blockages in the original design caused rotor incidence to be one degree higher at the tip and about one half of a degree higher at the hub, relative to design intent. This analysis also indicated that the blade had insufficient camber, especially in the outer spans of the airfoil, which would result in the stage underflow. Test rotor turning was higher than design for the entire span, as shown on Figure 24, but fell short of that required to meet design pressure ratio goals at design flow. Most of this higher turning was caused by the difference in flowpath blockages between design and test.

Rotor deviation, Figure 25, was slightly higher than design at midspan and the tip, but lower than design from 70 to 90 percent of span. Rotor velocity density ratios were greater than design (greater streamtube convergence) for most of the span, as shown on Figure 26, because of the larger than design flowpath blockage at the rotor exit. The velocity density ratios in this figure are shown for the wide open discharge and near-surge data points. Rotor diffusion factors, Figure 27, were higher than design in the tip area and lower than design at midspan. Rotor loss coefficient, Figure 28, exhibits high loss relative to design above 30 percent span, producing the lower than expected efficiency over that region.

Stator inlet and incidence angles, Figures 29 and 30, were close to design, but stator turning, Figure 31, was lower than design, and stator deviation, Figure 32, was higher than design for most of the span. The stator underturned by about  $5^\circ$  up to 70 percent span. This resulted in diffusion factors lower than design, as shown in Figure 33. Stator loss coefficient, Figure 34, was close to design for the entire span, but at turning levels lower than design. As discussed earlier in this report, the stator trailing edge air angles as measured by the wedge traverse probes were concluded to be incorrect because of probe blockage effects. The potential flow analysis indicated that the stator exit air angles would be closer to design than measured when probe influence was removed, which would result in stator turning, deviation, and diffusion factor closer to design. The near design incidence and loss levels of the stator also support the conclusion that the indicated large stator deviation is suspect and that a value closer to design was accomplished.

### 5.2.2 Variations of Blade Element Parameters with Incidence Angle

Blade element parameter plots show that the rotor was operating on the stall side of its characteristic over the entire span while the stator was close to design. Blade element plots of deviation angle, diffusion factor, and loss coefficient versus suction surface incidence angle at nine radial locations for the rotor are presented in Figures 35 through 43 and for the stator in Figures 44 through 52.

Rotor incidence was higher than design at all span locations and all speeds while design speed loss coefficient was greater than design above 30 percent of span. Minimum loss incidence was probably not achieved from 70 to 90 percent of span, and the curves indicate that rotor efficiency would probably have been significantly better if design incidence levels had been achieved.

Below 50 percent of span, high speed rotor diffusion factor did not increase with incidence. At higher span locations, diffusion factor did increase with incidence and reached a level of 0.7 near the tip. This level of diffusion factor near the blade tip indicates that the rotor tip was probably responsible for stage surge. The high test diffusion factor indicates that the low aspect ratio rotor was capable of high loadings.

Rotor deviation near the hub changed very little with incidence. However, midspan deviation at the higher speeds actually decreased as incidence was increased. Deviation increased with increasing incidence for the outer portions of the blade. As previously mentioned (Figure 26), the velocity density ratios increased (more streamtube convergence) below 70 percent of span as the stage was back pressured from the operating line to surge, caused mostly by rapidly increasing tip losses. The increased exit velocity due to this streamtube contraction apparently increased exit air angle and reduced deviation more as tip losses increased further.

Stator minimum loss at design speed was at or below the design level for all spans, as shown in Figures 44 through 52. A minimum loss incidence was well defined at most spans with increasing losses at choke and stall incidence. Stator deviation was about  $5^\circ$  above design at the lower span locations, but approached design level above 70 percent span where the Mach numbers were lower. The probable error in stator trailing edge air angle is apparent in the deviation curves. The effect of probe blockage on measured air angle would increase with increased Mach number. Near design deviation was achieved over most of the span at lower speeds where Mach number was likewise lower. From hub to 50 percent of span, stator deviation decreased with increased incidence, even when strong stall incidence losses were encountered, presumably also due to the lower Mach numbers. The actual stator deviation was probably closer to design than indicated in these figures. Peak stator diffusion factor at design speed was 0.61 at the hub and tip, but because of the incorrect stator exit air angles, the diffusion factors were probably higher, especially in the hub area.

Stator operating range, as shown by the loss versus incidence curves, was less than 30° at 15 percent of span, Figure 46, for design speed and was strongly dependent on Mach number. The incidence range from choke to stall increased with decreasing speed. At 90 percent of span, the design speed incidence range of the stator was in excess of 100°, as shown by Figure 51.

#### 5.2.3 Low Speed Restaggered Vane Angles Spanwise Comparison

Spanwise comparisons of design stagger tests with closed inlet-guide-vane and stator stagger tests showed a significant reduction in rotor hub work, pressure ratio, and efficiency relative to the tip. The resulting shift of flow toward the tip imposed a large diffusion and resulted in poor performance at the stator hub.

The data points used in this comparison, identified on the maps in Figures 15 and 16, were the points closest to a 15 percent surge margin.

Figures 53 through 63 compare radial profiles of performance parameters at 70 percent design speed for the closed and nominal inlet-guide-vane and stator stagger settings. The rotor work for the closed settings, as indicated by temperature ratio in Figure 53, was extremely low at the lower span locations. Stage and rotor pressure ratios (Figures 54 and 55) were also very low in the hub area during the closed setting test. Figures 56 and 57 show spanwise comparisons of stage and rotor efficiency for the two stagger settings. Rotor efficiency was very low below 50 percent span, and stage efficiency was low below 70 percent span. The rotor efficiencies shown in Figure 57 were based on the temperatures measured at the stator exit on the same streamline and shown in Figure 53. The temperatures at the two locations (rotor and stator exits) at the various percent spans differed slightly because of the radial shifting of streamlines. Rotor incidence (Figure 58) at the closed settings was lower in the hub area and higher at the tip than the incidence obtained at design settings. Stator incidence (Figure 59) at the closed settings was lower at the hub than with design settings and close to design setting incidence at the higher span locations. Rotor diffusion factors (Figure 60) repeated the temperature ratio (Figure 53) and the rotor pressure ratio (Figure 55) trends, having low diffusion factors below 50 percent span and high diffusion factors above 50 percent span. The rotor tip region was probably responsible for setting the surge limit since diffusion factors were very high in this region. Stator diffusion factors (Figure 61) for closed stagger setting were higher than for the design setting over the entire span. Rotor loss coefficient (Figure 62) was higher over the entire span at the closed settings, but stator loss coefficient (Figure 63) was lower above 70 percent span.

#### 5.2.4 Variations of Blade Element Parameters with Incidence Angle

Blade element data showed that closing the inlet-guide-vane and stator moved the rotor hub toward choke incidence and the rotor tip further toward stall incidence, as seen in Figures 64 through 72. Rotor loss



coefficients were higher at all span locations for the closed-stagger settings. The rotor blade element plots indicate that above 50 percent span, the rotor operated along the same general curves as for design stagger, but at higher incidence angles. Below 50 percent span, the rotor had higher loss at the same or lower incidence, but produced too little work for this to have significance.

The stator operated on the choke side of minimum loss for most of the span and along a loss versus incidence curve that was similar to that for the design-stagger test. Stator blade element plots are shown in Figures 73 through 81 for the closed-stagger test compared with design stagger. Stator deviation was higher at the hub because of the large streamtube divergence, but similar to design stagger deviation for the other span locations. Diffusion factors for the closed stator stagger showed a maximum increase above design stagger levels at the hub as a result of the rotor flow shift. Probe blockage effects on the measured air angle at the stator exit may again have affected the indicated levels of stator deviation and diffusion factors.

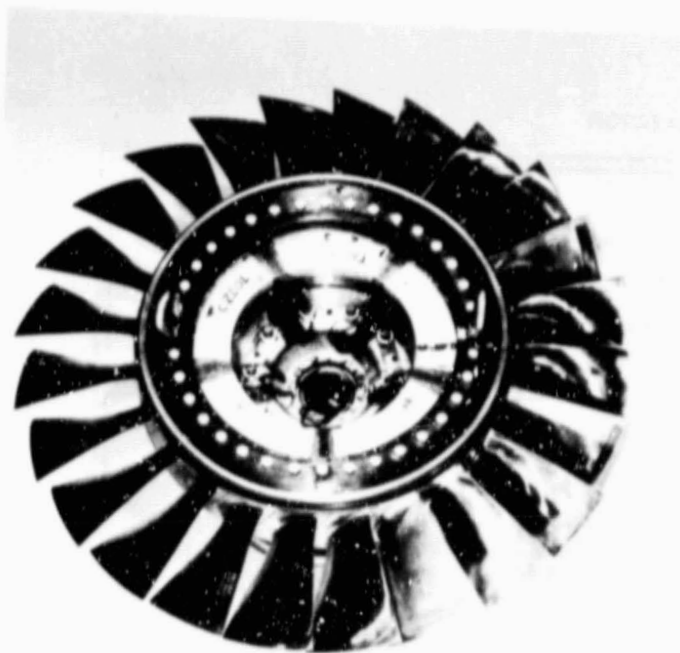
## 6.0 CONCLUSIONS

1. The intent of demonstrating high loading capability of low aspect ratio blading in the adverse front stage environment with a good efficiency level was accomplished, although the aggressive performance goals of this stage were not met.
2. Selecting the wrong flowpath blockages in the design produced high incidence and loss in the supersonic region of the rotor and was most likely the primary cause of the 1.9 percentage point deficit in stage efficiency and 4.7 percent shortfall in flow at the peak rotor efficiency point.
3. Correction of the rotor incidence problem as defined by analysis of test results should permit goal loss levels to be achieved.
4. The actual stator deviation is unknown because of the probable error in air angle measurement resulting from probe interference. Although the indicated stator deviation was approximately five degrees higher than design, analysis suggests that the actual deviation was much closer to design values.
5. Closing the inlet-guide-vane and stator from the design position did not improve part-speed surge line. The apparent triggering of surge in the rotor tip region suggests that correction of the rotor design speed incidence could also produce a change in part-speed stability.

6. Traverse pole rakes at the rotor discharge were found to produce a significant local circumferential distortion of the flowfield behind the rotor (34 percent of dynamic head back pressure) which resulted in an indicated drop in efficiency of three percentage points. It is concluded that the results of the few test points taken with these pole rakes installed are invalid since the measurements were taken in the region of maximum disturbance. Spanwise distributions of data with these probes installed are also suspect since probe blockage and back pressure varies as a percent of available flow area from tip to hub.

#### 7.0 REFERENCES

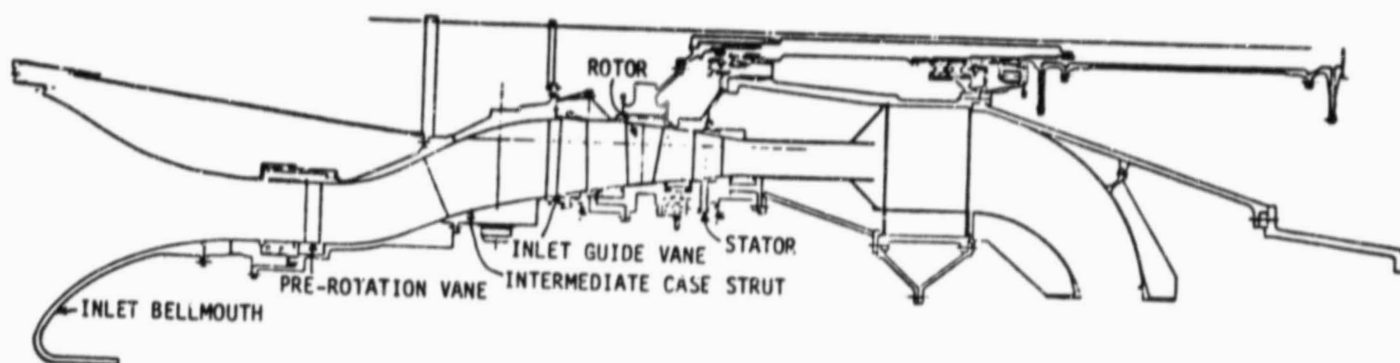
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3. Messenger, H.E. and Keenan, M.J.: "Two-Stage Fan-II. Data and Performance with Redesigned Second Stage Rotor, Uniform and Distorted Inlet Flows," NASA CR-134710, PWA-5087, 1974.
4. Burger, G. D.; Lee, D.; and Snow, D. W.: "Study of Blade Aspect Ratio on a Compressor Front Stage--Aerodynamic and Mechanical Design Report," NASA CR-159555, PWA-5583-25, 1979.



Rotor Assembly, Front Overall View



Vane Assembly, Close Up



Rig Overall Schematic

Figure 1 Low Aspect Ratio Front Stage Rig

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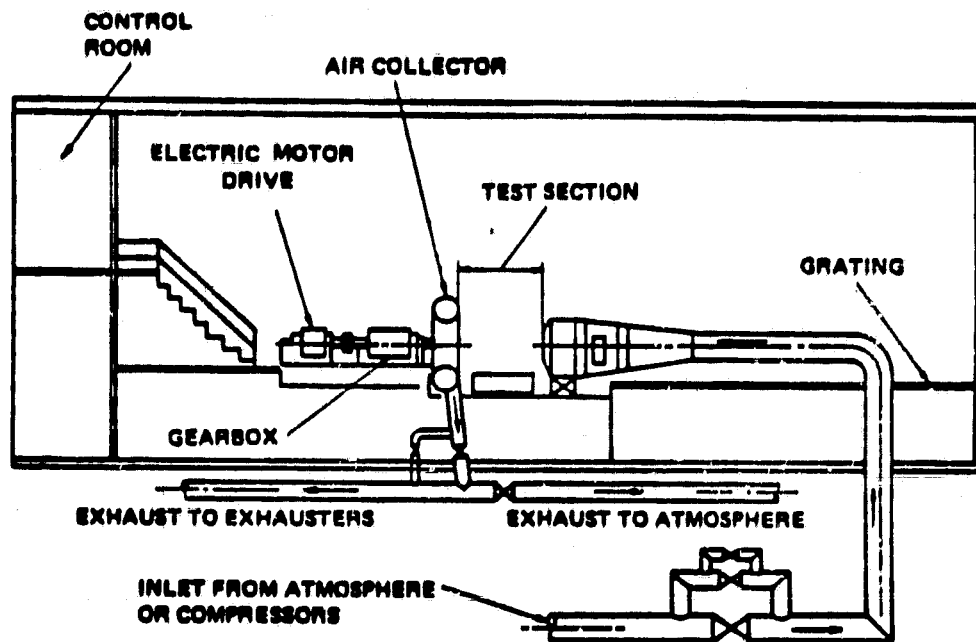
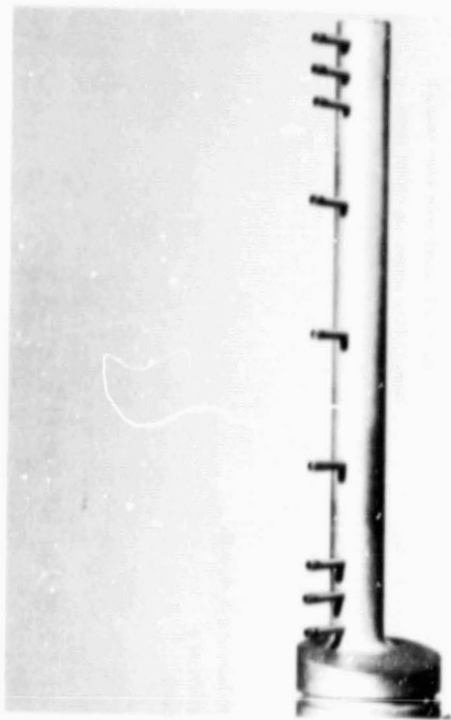
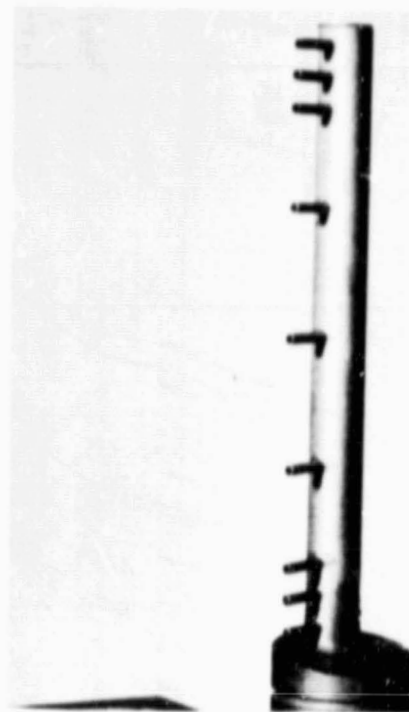


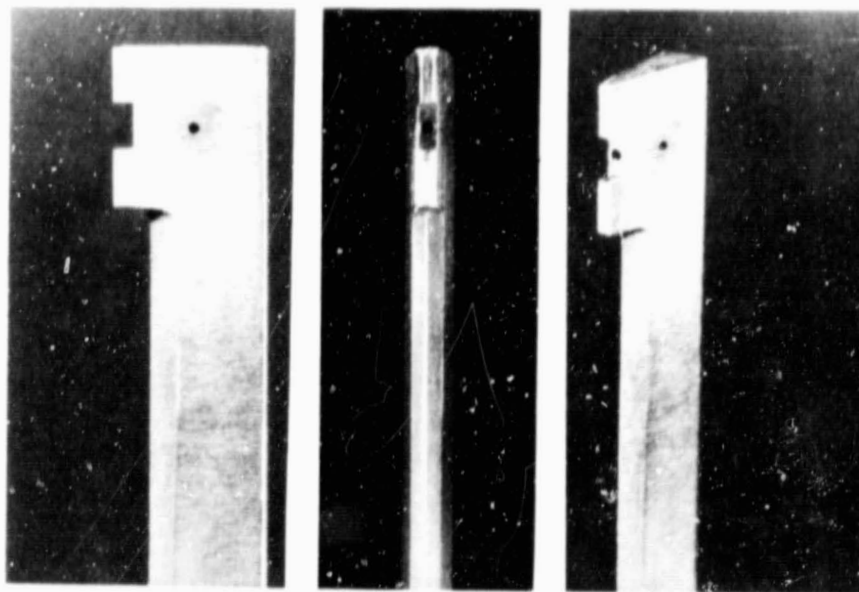
Figure 2 Schematic of Test Stand



Total Pressure Rake



Total Temperature Rake



Traverse Wedge Probe

Figure 3 Typical Instrumentation

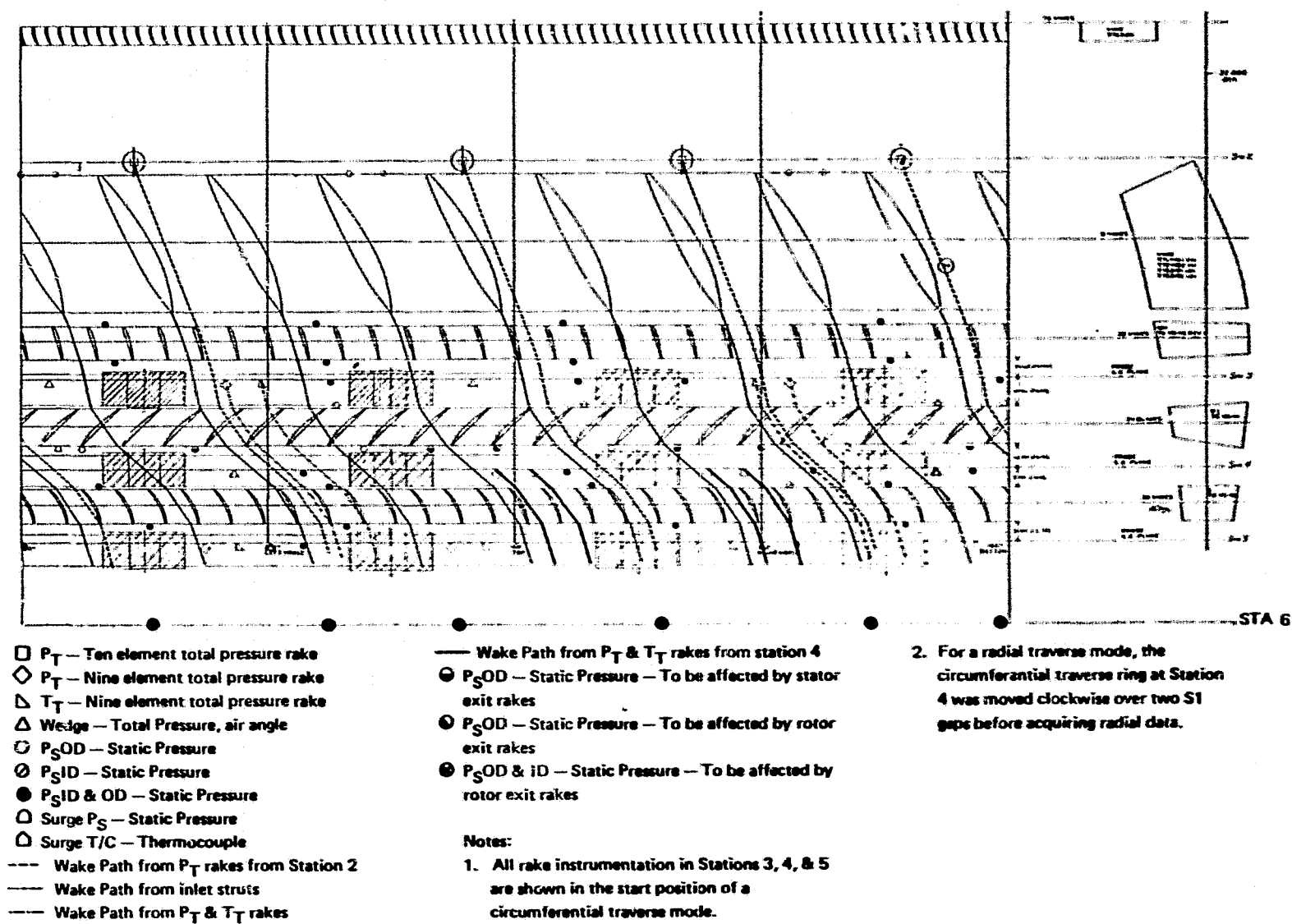


Figure 4 Circumferential and Axial Location of Instrumentation

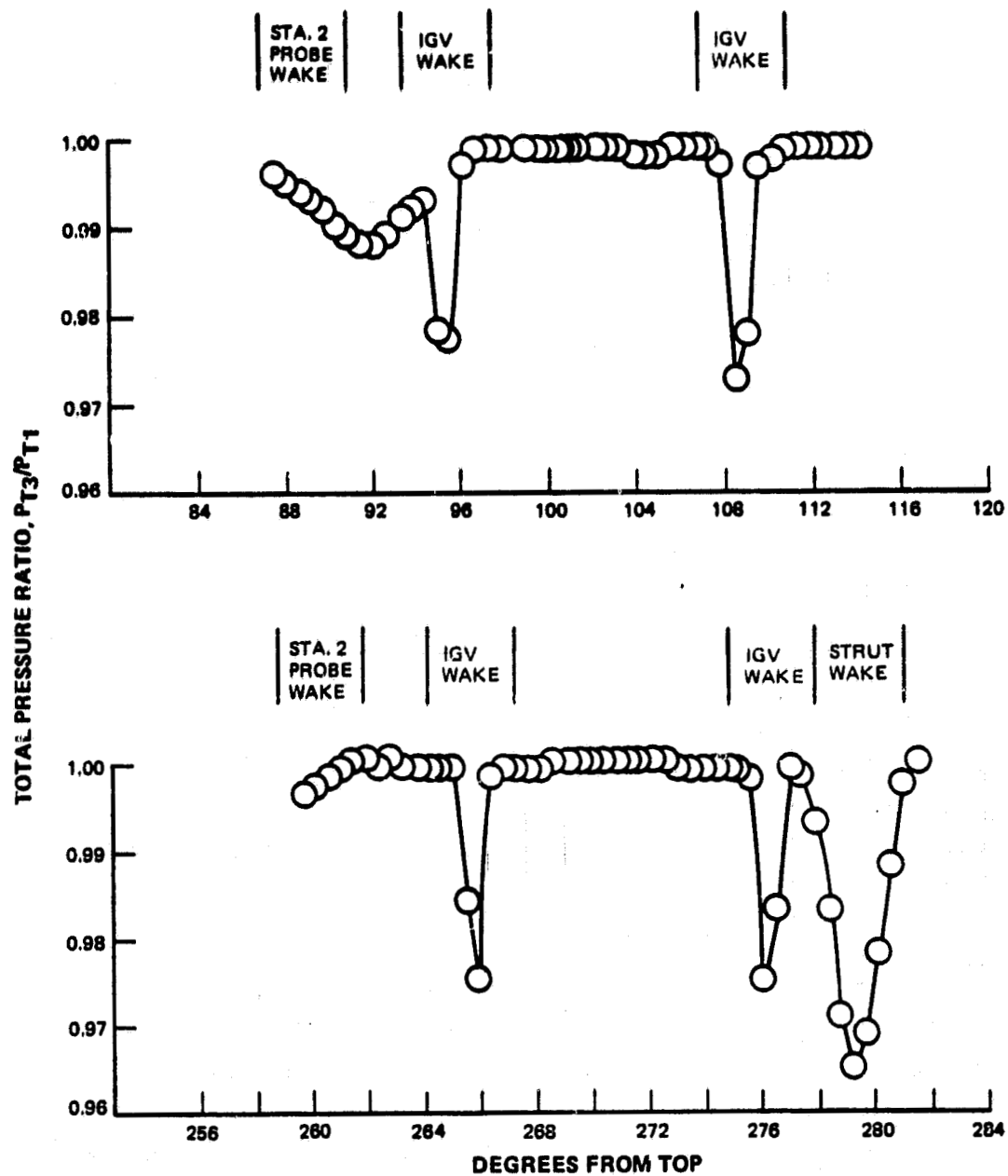


Figure 5 Station 3 Rotor Leading Edge Total Pressure Pole Rake Traverse at Fifty Percent Span, Design Speed

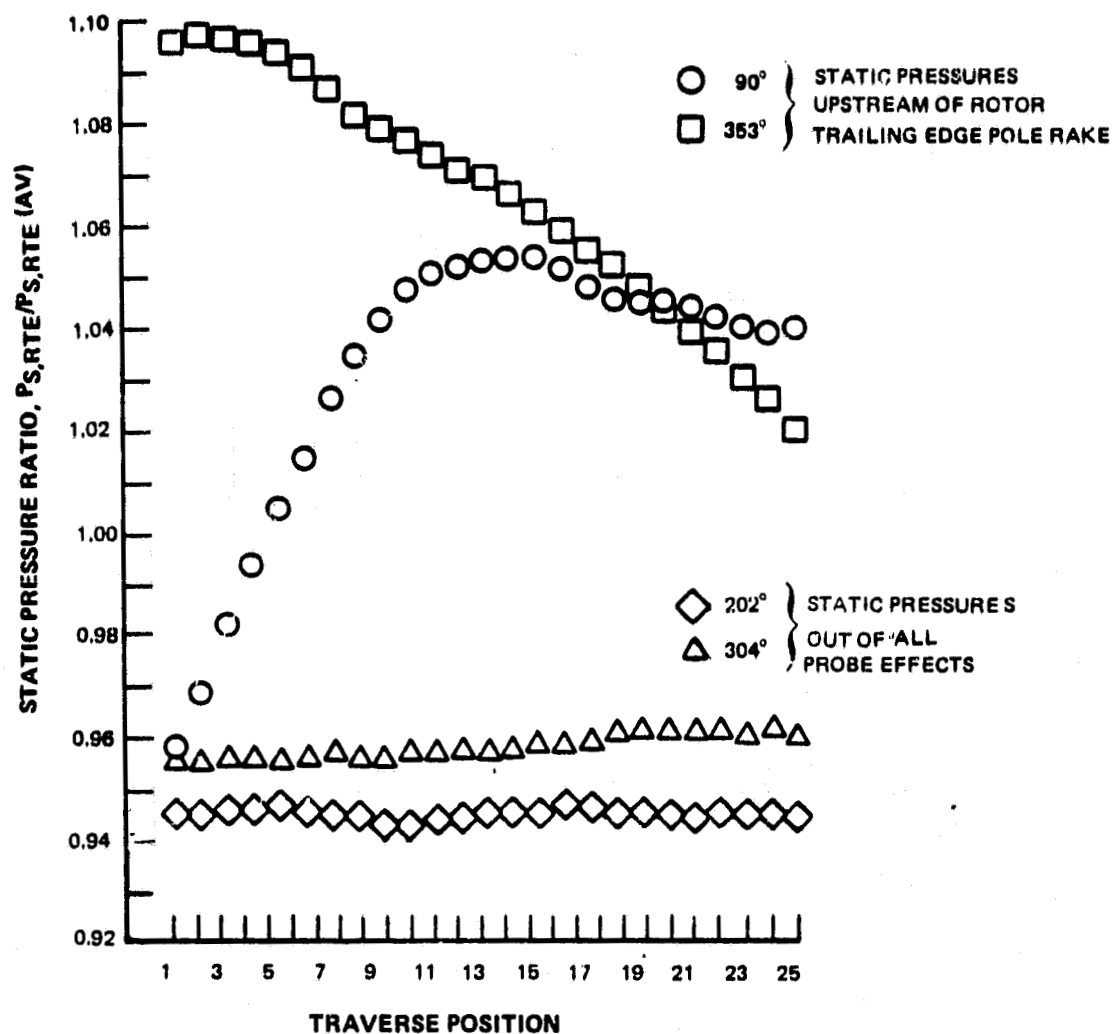


Figure 6 Rotor Trailing Edge Static Pressure Upstream of Station 4 Pole Rake Traverse



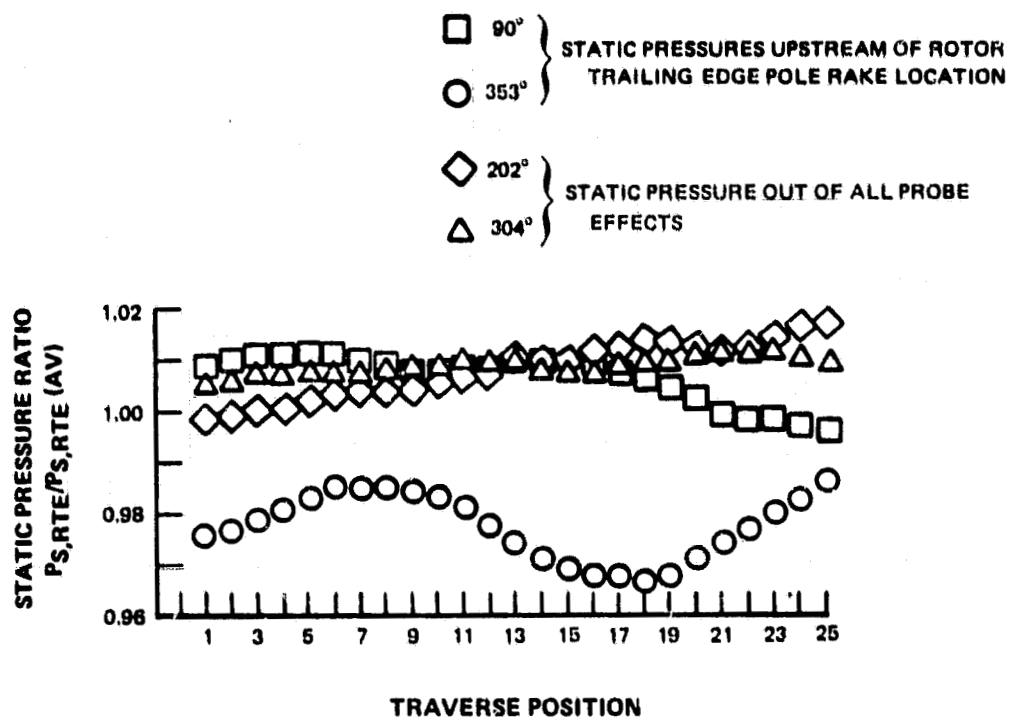


Figure 7 Rotor Trailing Edge Static Pressure Measurements With Station 4 Rakes Removed

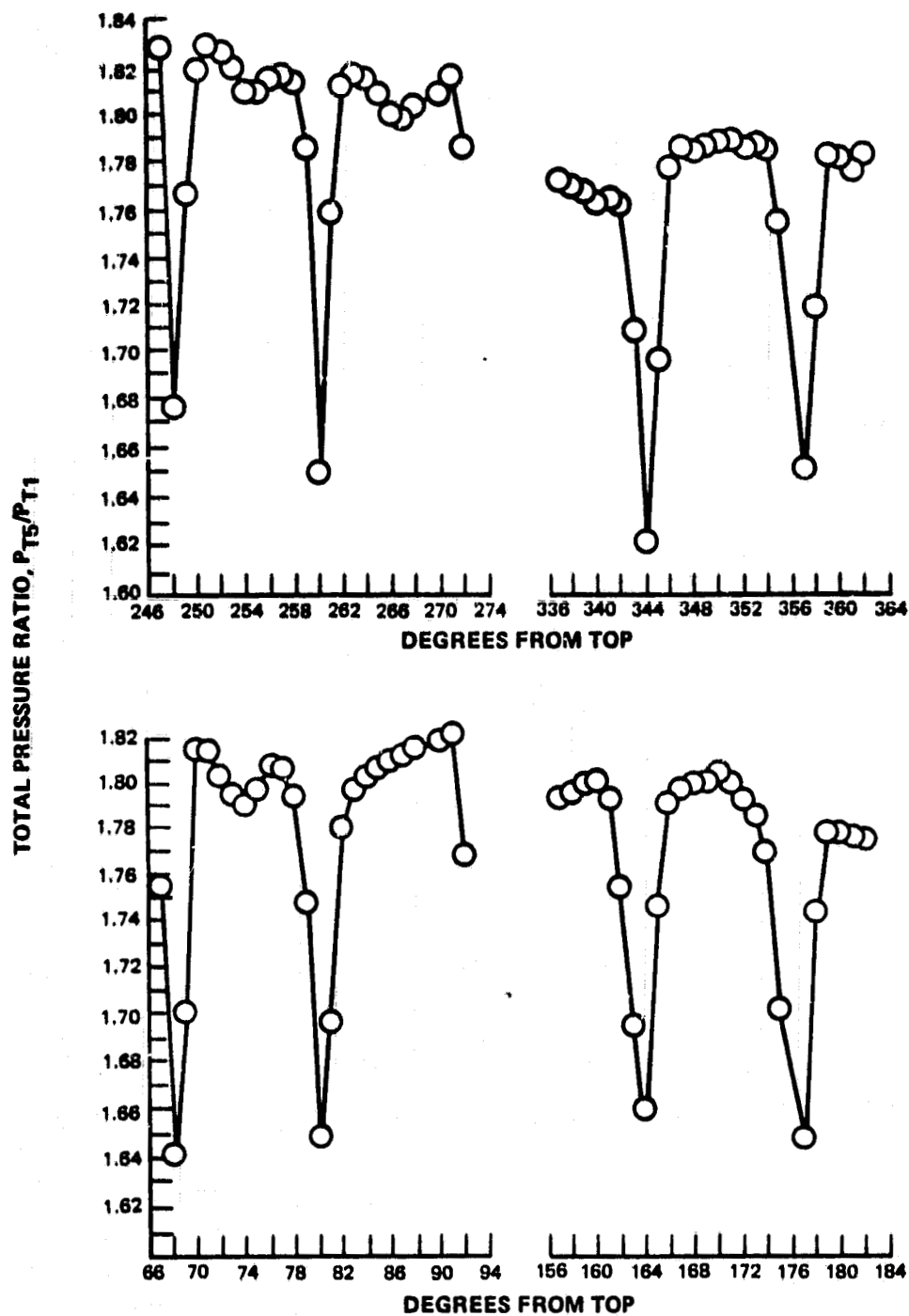


Figure 8 Station 5 Stator Trailing Edge Total Pressure Pole Rake Traverse at Fifty Percent Span, Design Speed

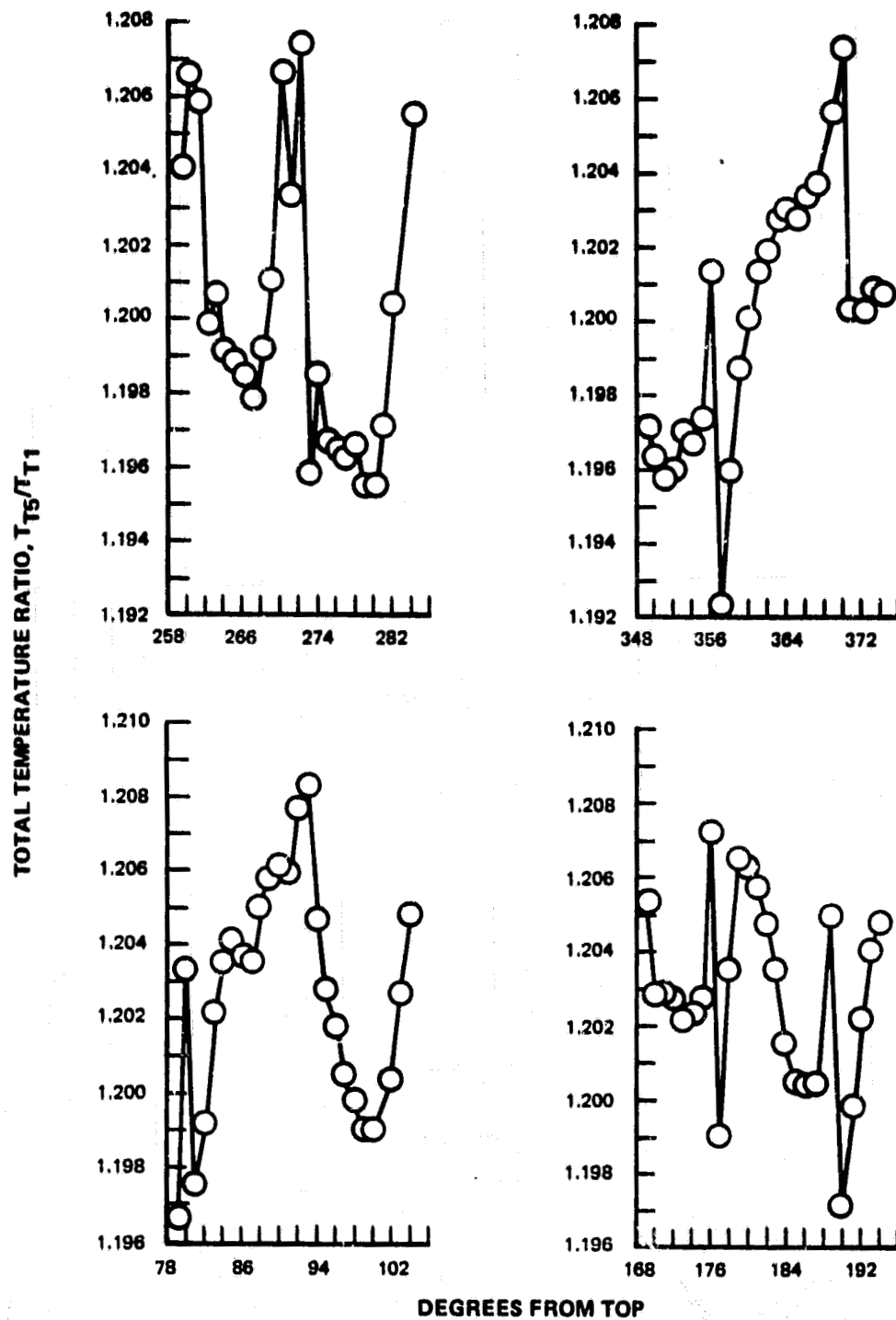


Figure 9 Station 5 Stator Trailing Edge Total Temperature Pole Rake Traverse at Fifty Percent Span, Design Speed

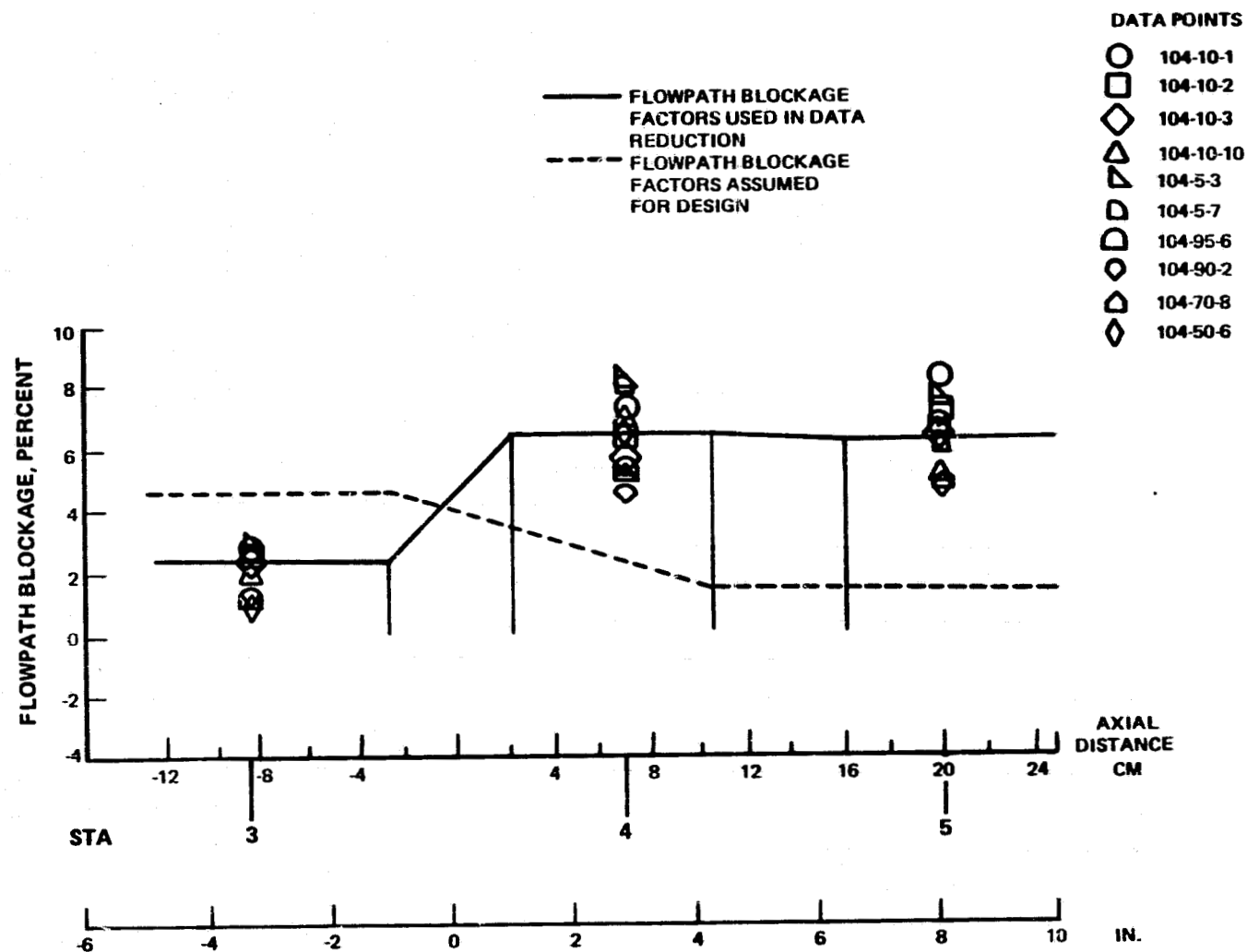


Figure 10 Comparison of Flowpath Blockage Factors Used in Data Reduction With Those That Had Been Assumed for Design

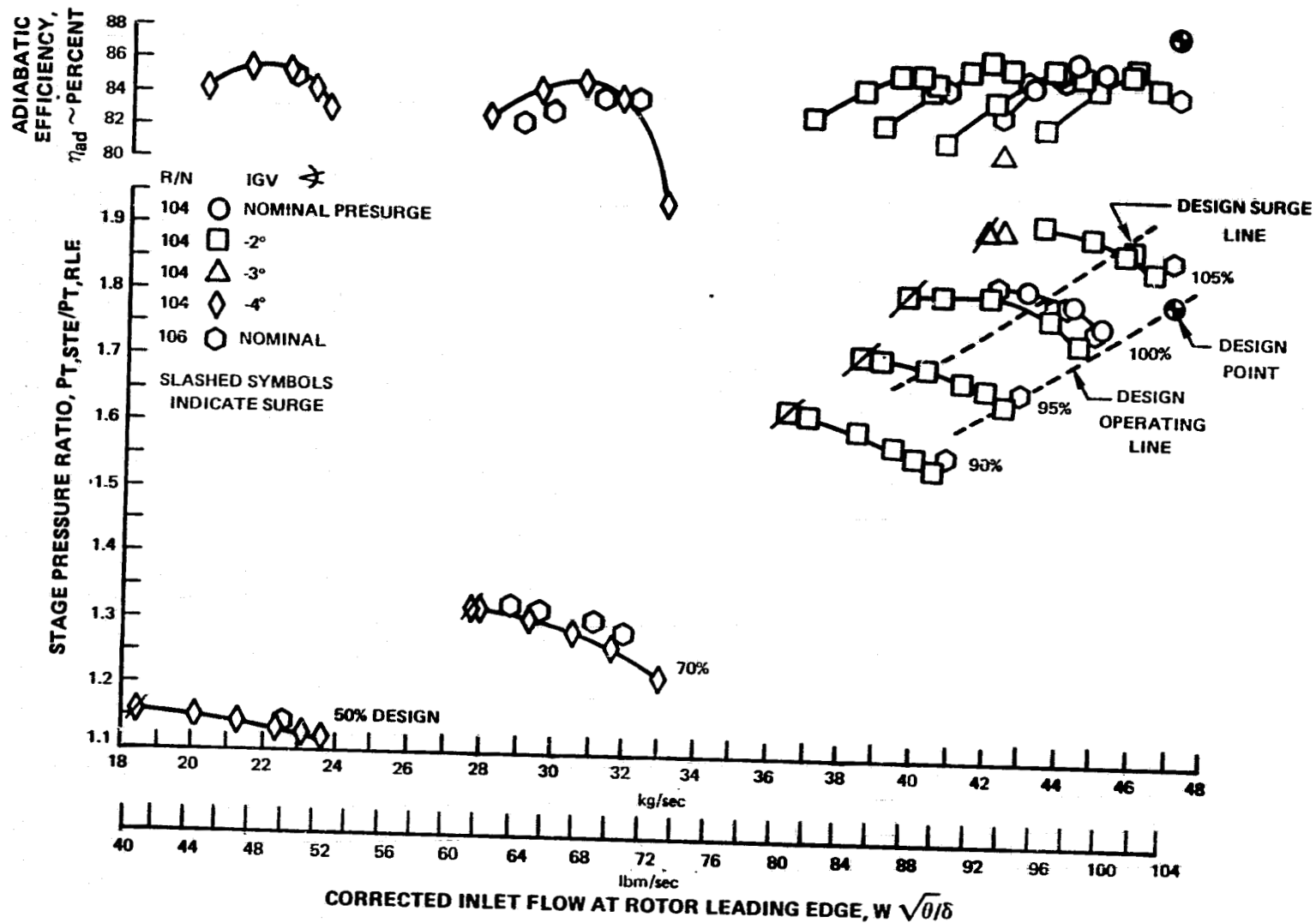


Figure 11 Stage Pressure Ratio and Adiabatic Efficiency as Functions of Corrected Inlet Flow

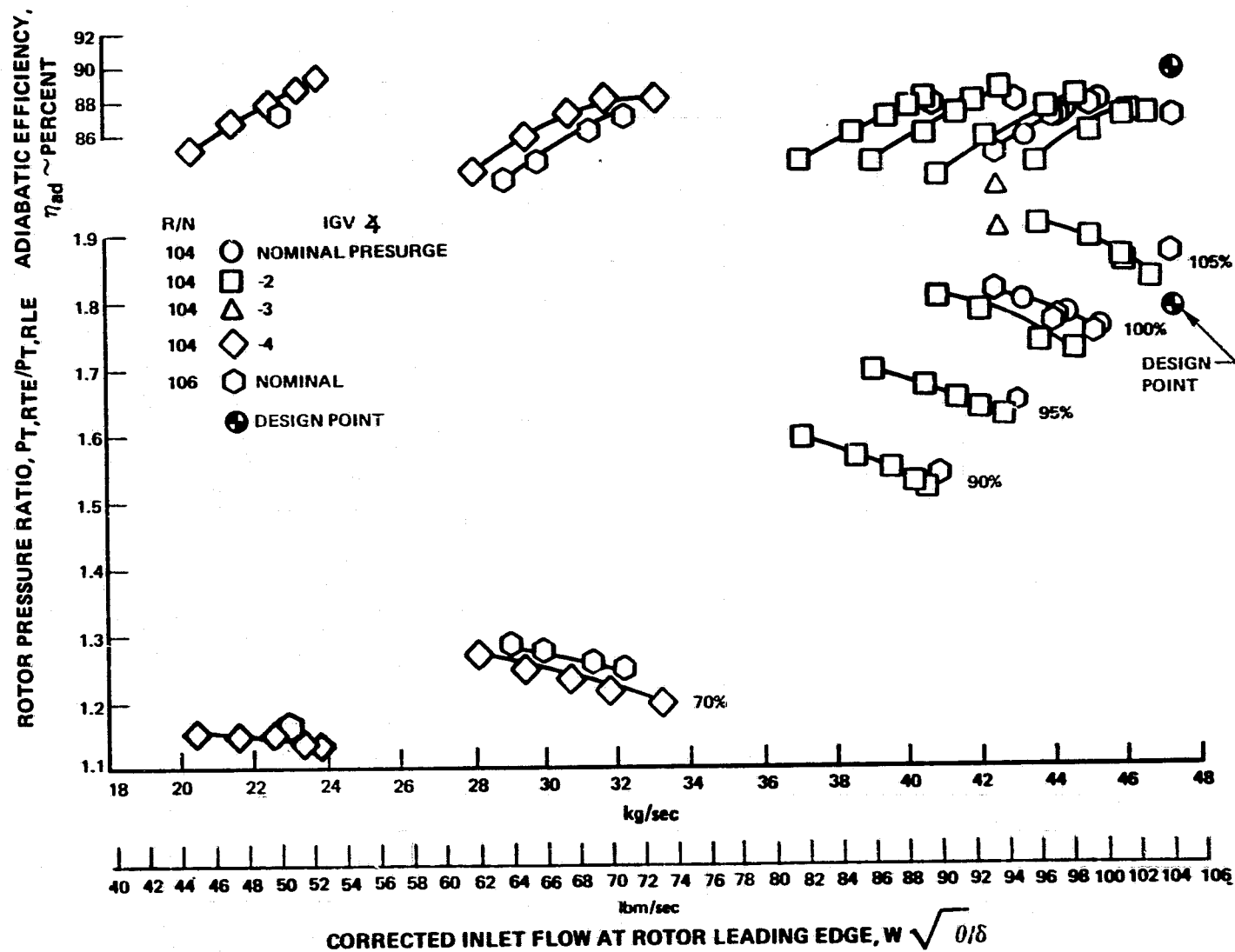


Figure 12 Rotor Pressure Ratio and Adiabatic Efficiency as Functions of Corrected Inlet Flow

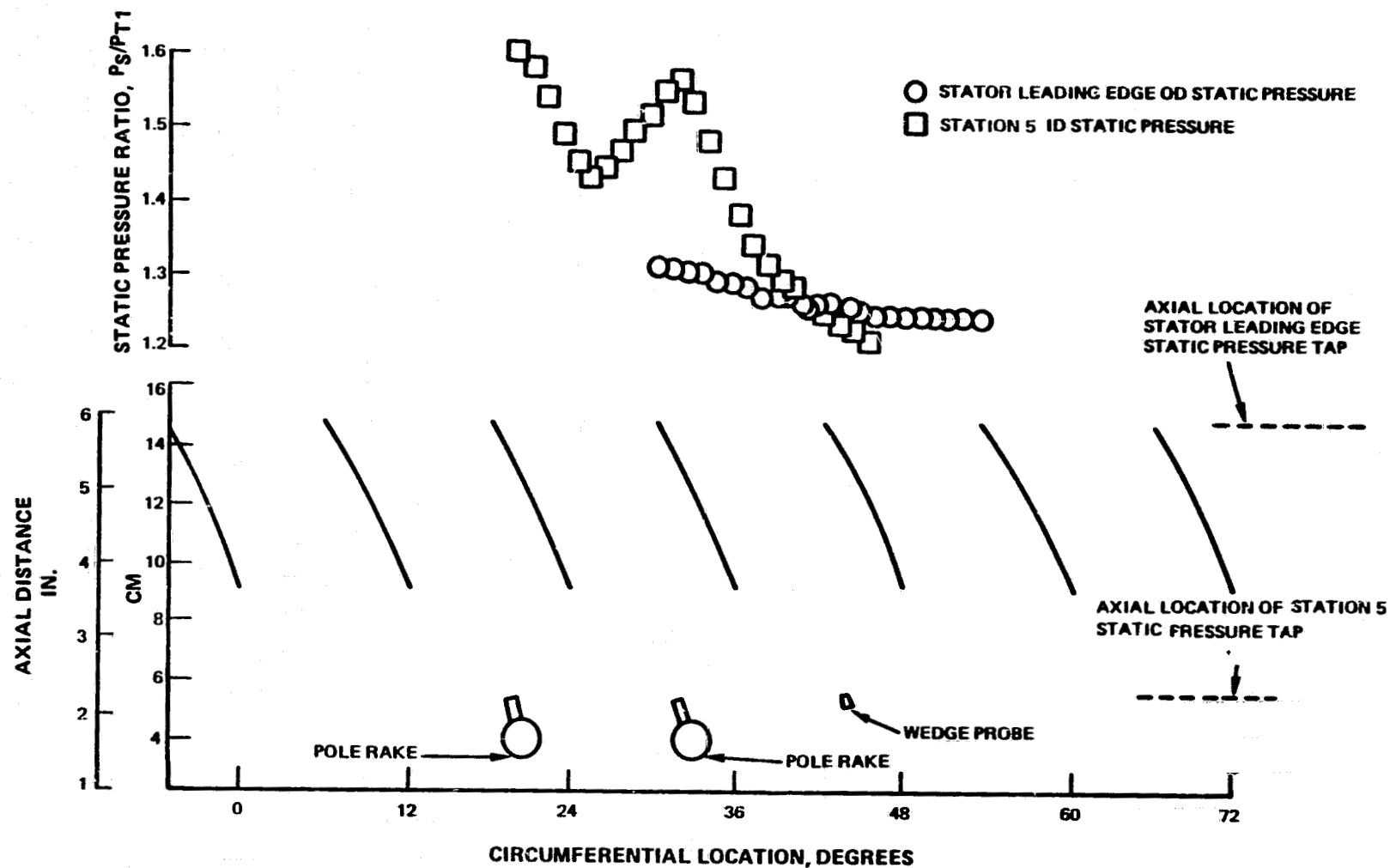
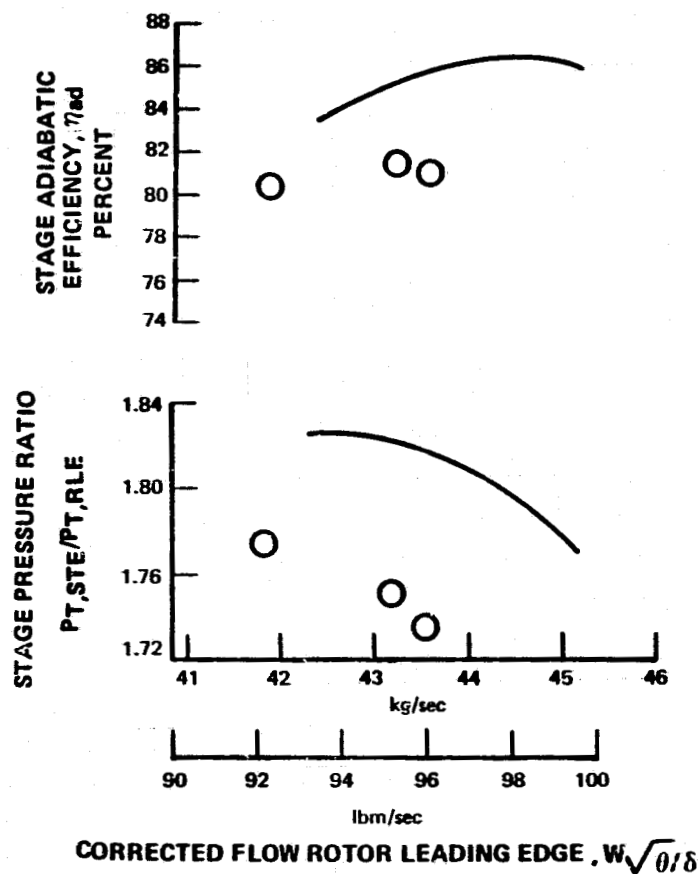


Figure 13 Stator Leading and Trailing Edge Static Pressure Upstream of Station 5 Pole Rake Traverse

# DESIGN SPEED STAGE PERFORMANCE WITH ROTOR TRAILING EDGE PROBES INSTALLED

- PERFORMANCE CALCULATED USING STATOR TRAILING EDGE PROBES
- DESIGN SPEED STAGE PERFORMANCE WITH ROTOR TRAILING EDGE PROBES REMOVED



# DESIGN SPEED ROTOR PERFORMANCE WITH ROTOR TRAILING EDGE PROBES INSTALLED

- PERFORMANCE CALCULATED USING STATOR TRAILING EDGE TEMPERATURE AND STATOR TRAILING EDGE FREE STREAM PRESSURE
- PERFORMANCE CALCULATED USING ROTOR TRAILING PRESSURE AND STATOR TRAILING EDGE TEMPERATURE
- ◇ PERFORMANCE CALCULATED USING ROTOR TRAILING EDGE PRESSURE AND TEMPERATURE
- DESIGN SPEED STAGE PERFORMANCE WITH ROTOR TRAILING EDGE PROBES REMOVED. PERFORMANCE CALCULATED USING STATOR TRAILING EDGE TEMPERATURE AND STATOR TRAILING EDGE FREE STREAM PRESSURE

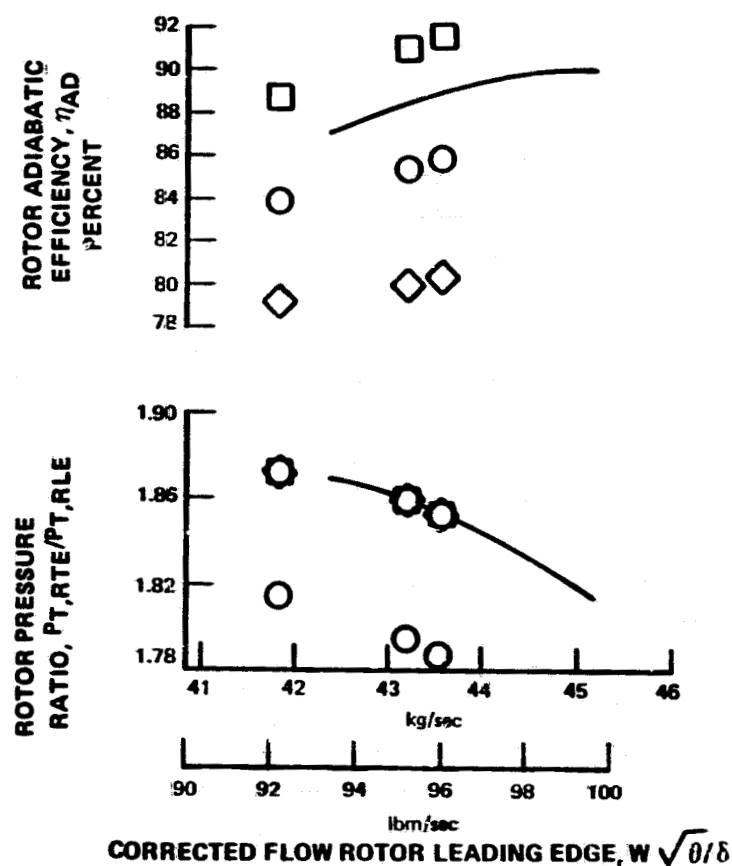


Figure 14 Stage and Rotor Performance at Design Speed With Rotor Trailing Edge (Station 4) Probes Installed Compared With Performance With Rotor Trailing Edge Probes Removed



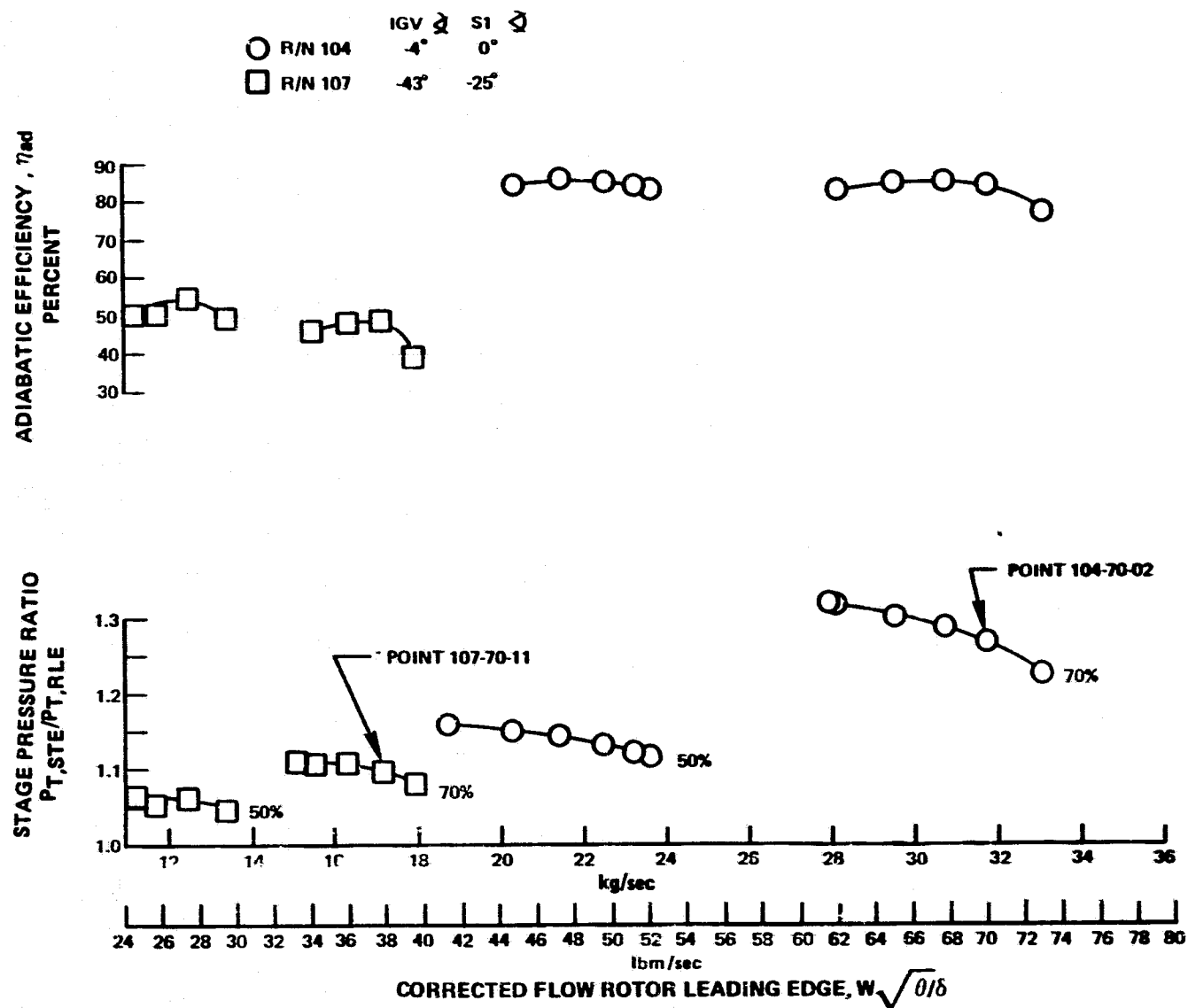


Figure 15 Comparison of Stage Performance With Design and Restaggered Inlet Guide Vane and Stator Angles at Low Speed

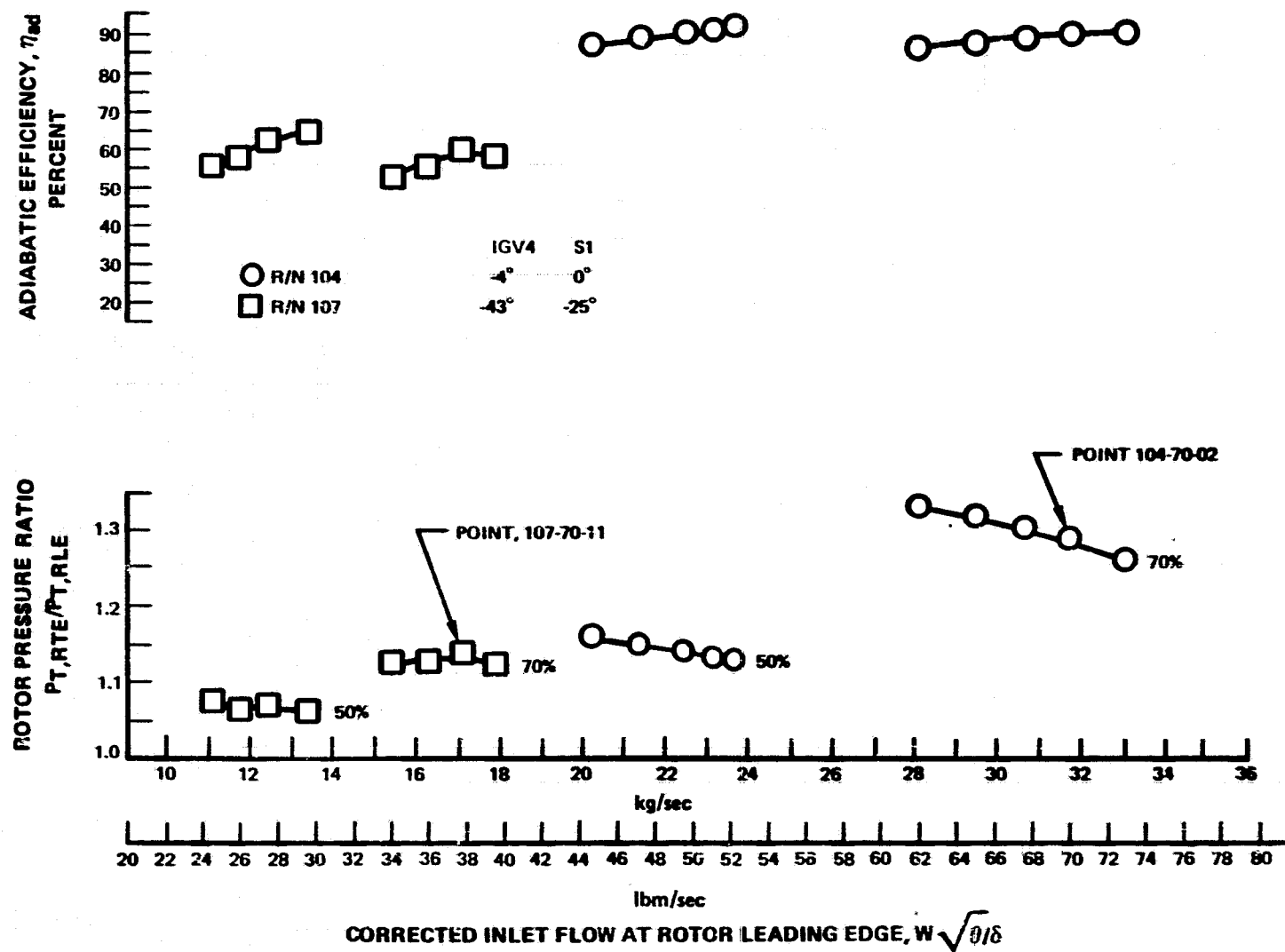


Figure 16 Comparison of Rotor Performance With Design and Restaggered Inlet Guide Vane and Stator Angles at Low Speed

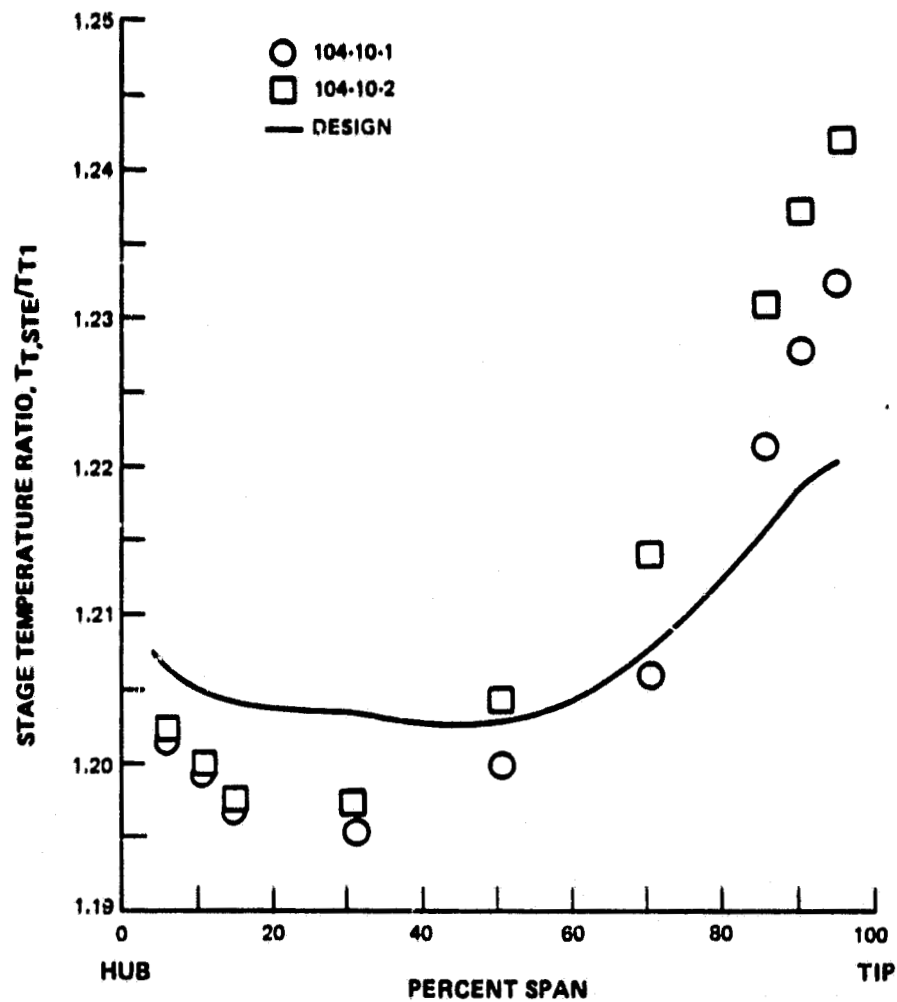


Figure 17 Stage Temperature Ratio as a Function of Percent Span at the Stator Trailing Edge

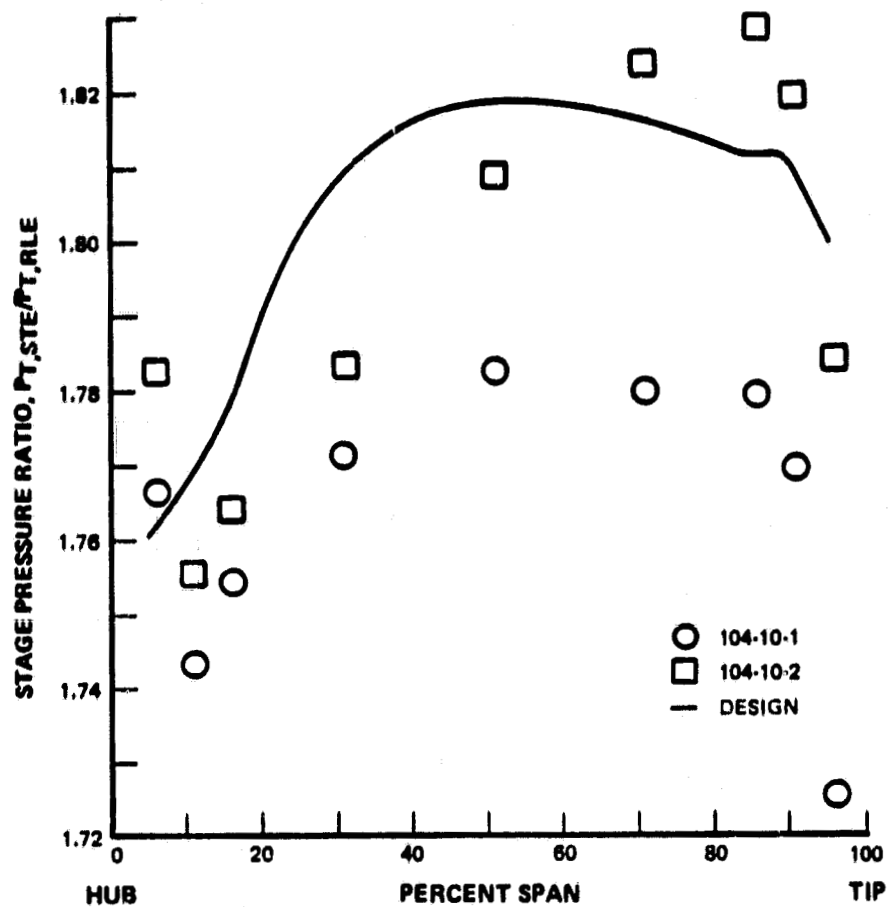


Figure 18 Stage Pressure Ratio as a Function of Percent Span at the Stator Trailing Edge

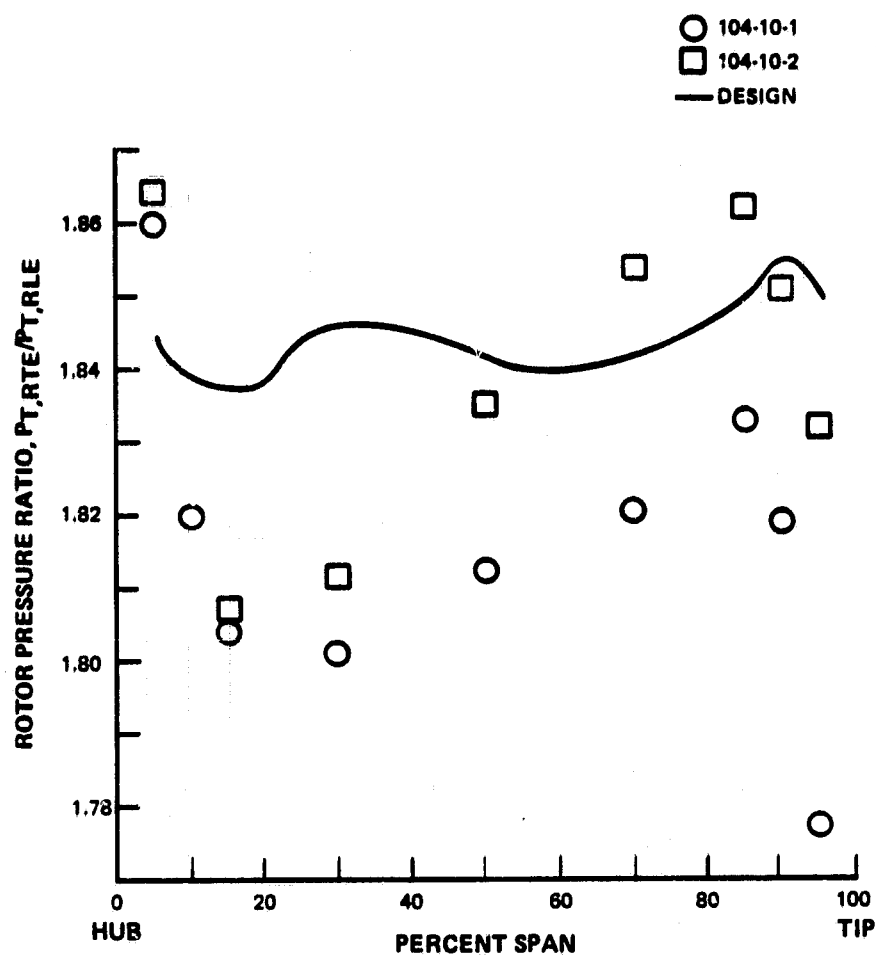


Figure 19 Rotor Pressure Ratio as a Function of Percent Span at the Rotor Trailing Edge

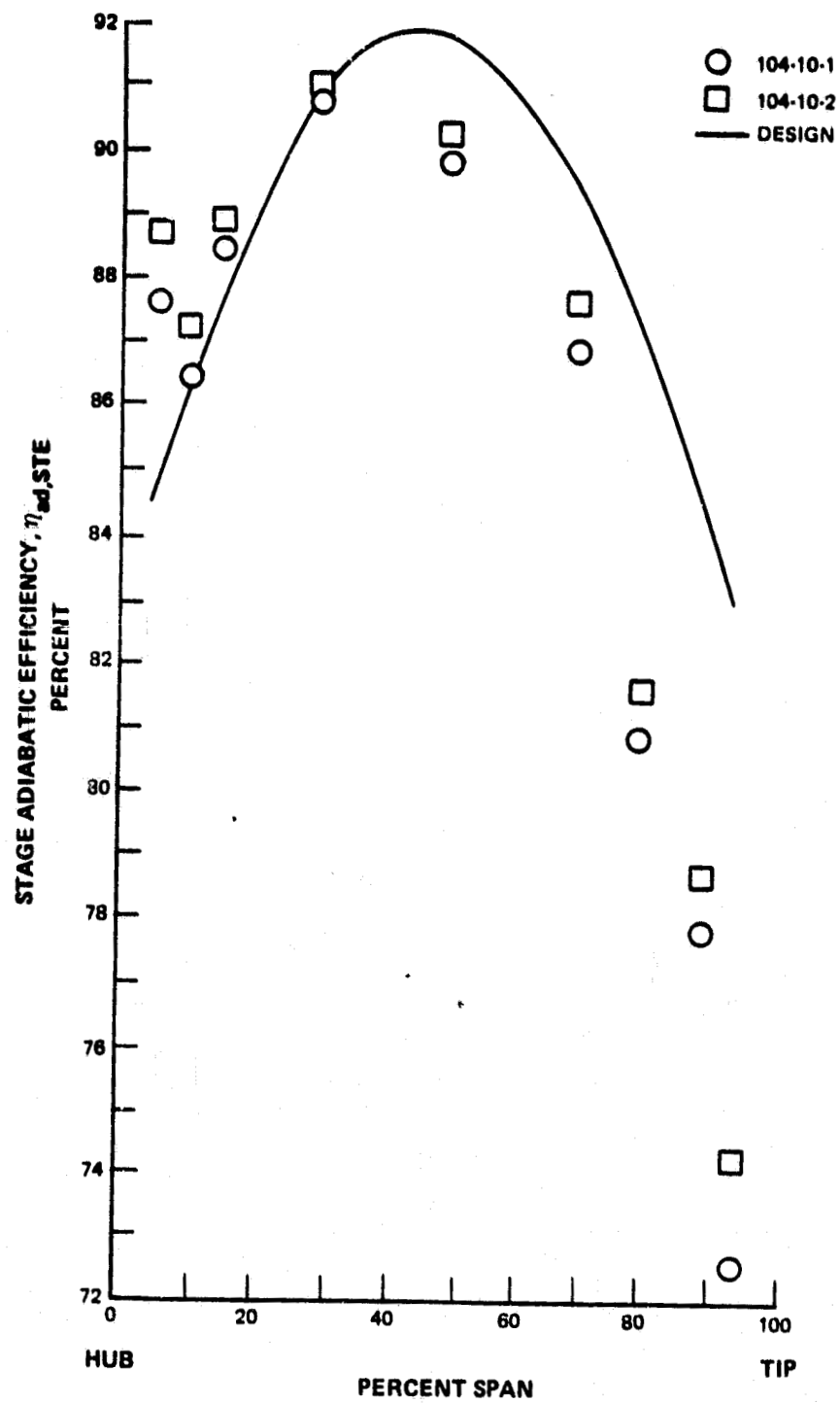


Figure 20 Stage Adiabatic Efficiency as a Function of Percent Span at the Stator Trailing Edge

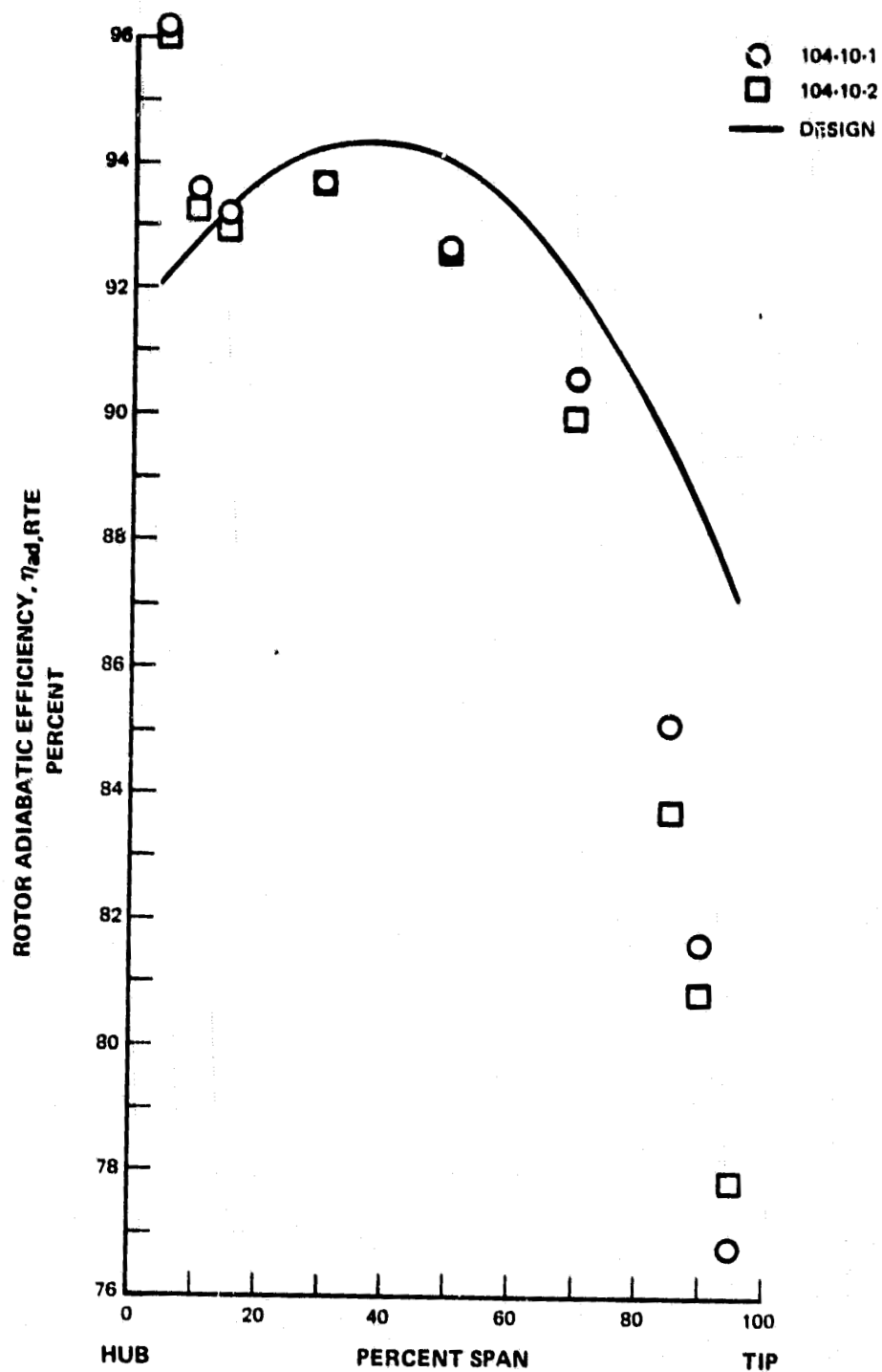


Figure 21 Rotor Adiabatic Efficiency as a Function of Percent Span at the Rotor Trailing Edge

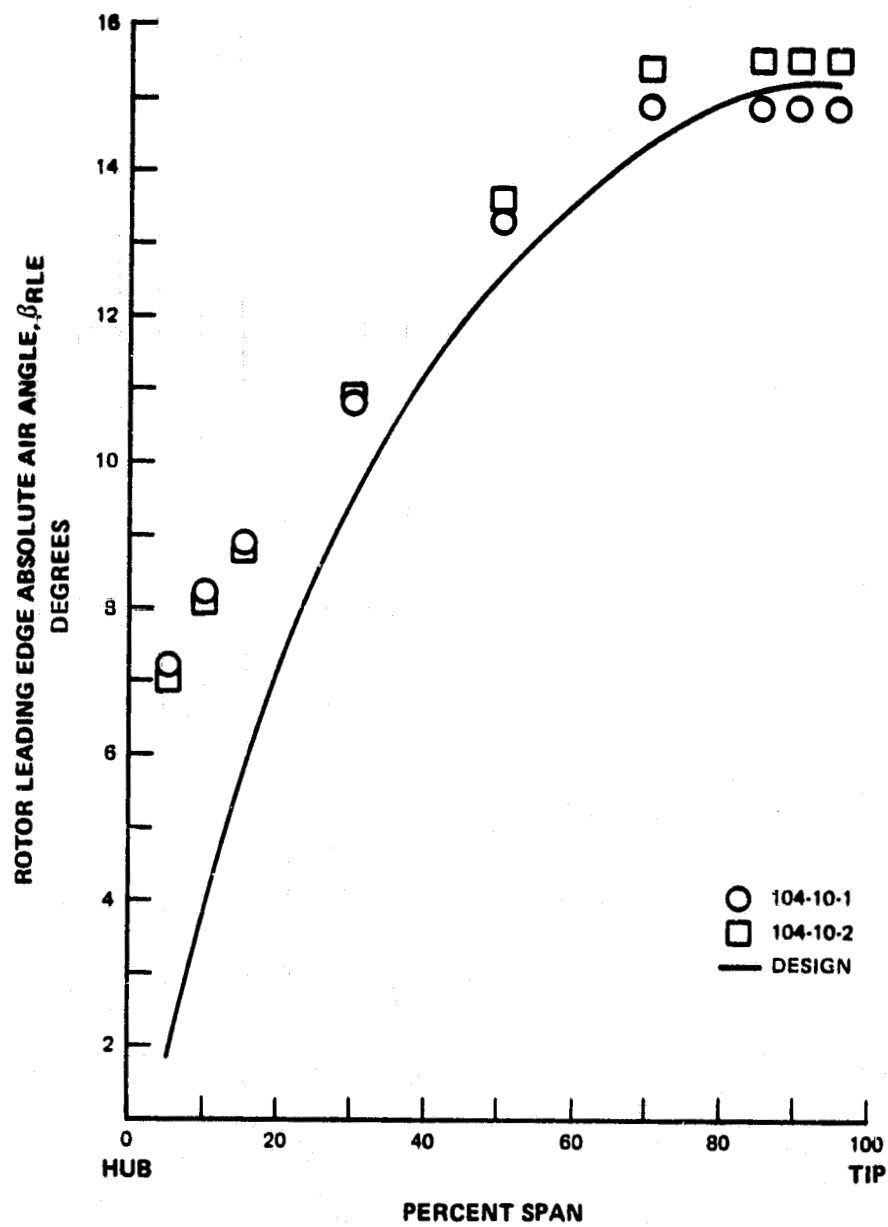


Figure 22 Rotor Leading Edge Absolute Air Angle as a Function of Percent Span at the Rotor Trailing Edge



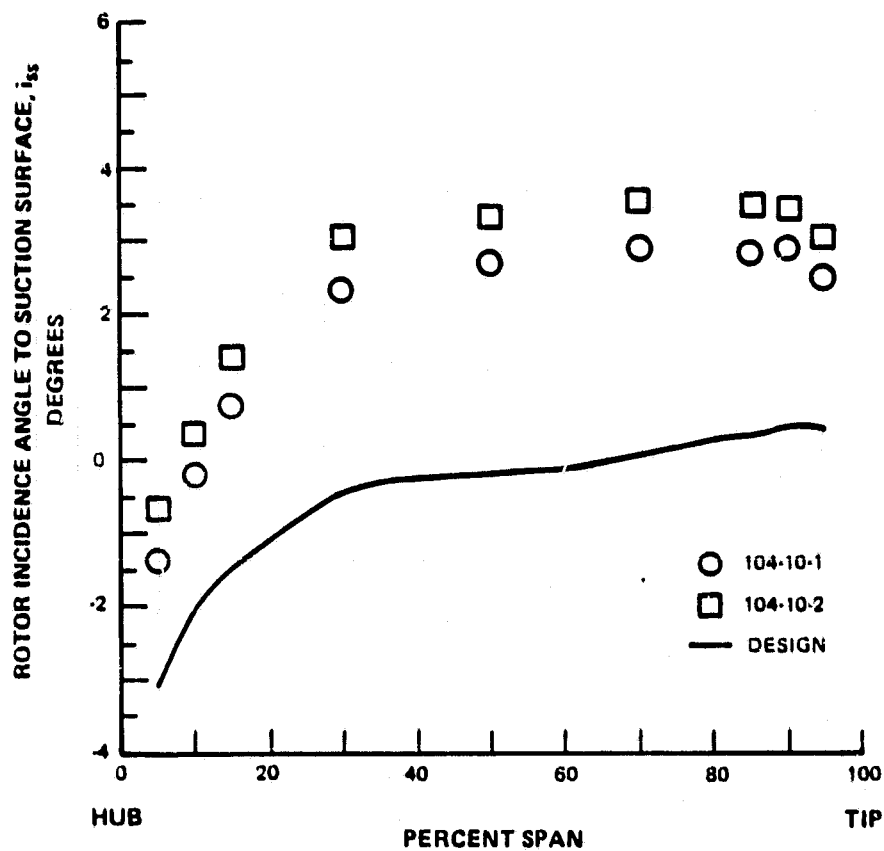


Figure 23 Rotor Incidence Angle to Suction Surface as a Function of Percent Span at Rotor Trailing Edge

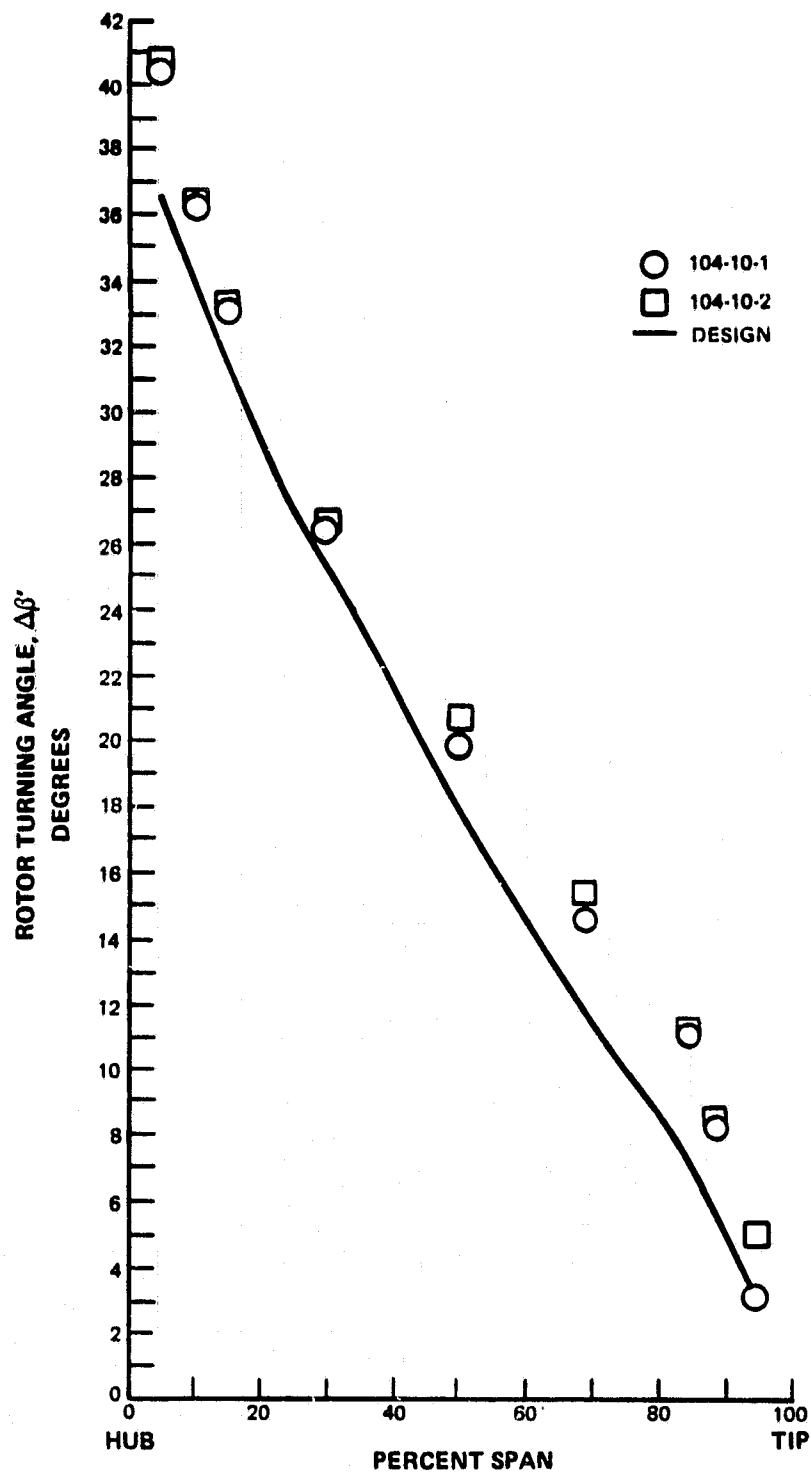


Figure 24 Rotor Turning Angle as a Function of Percent Span at Rotor Trailing Edge

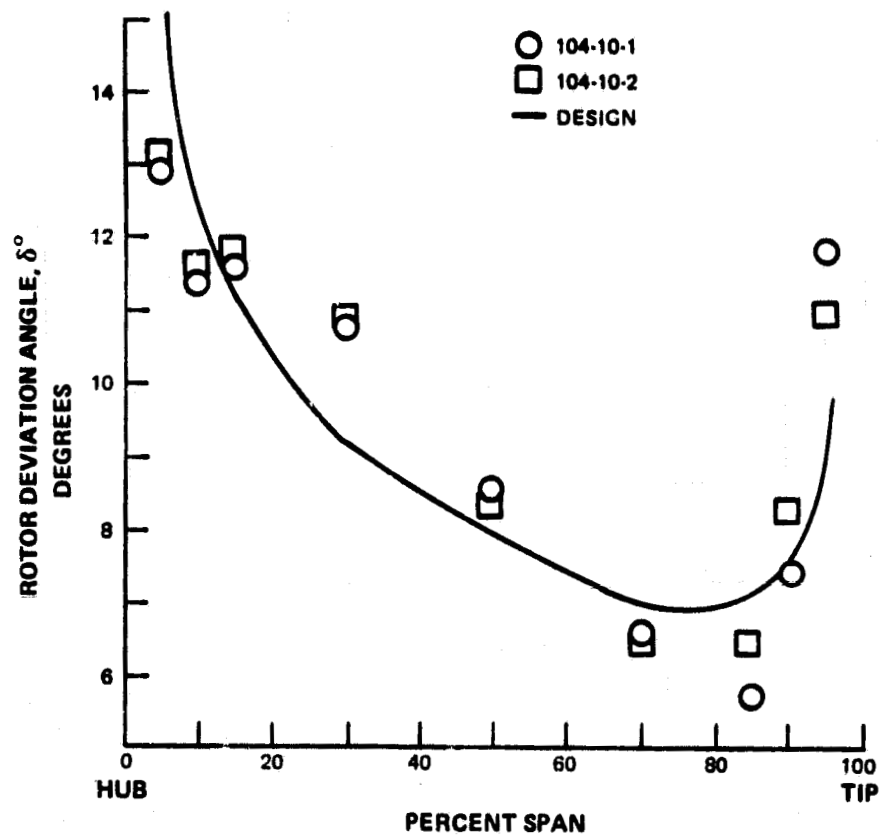


Figure 25 Rotor Deviation Angle as a Function of Percent Span at Rotor Trailing Edge

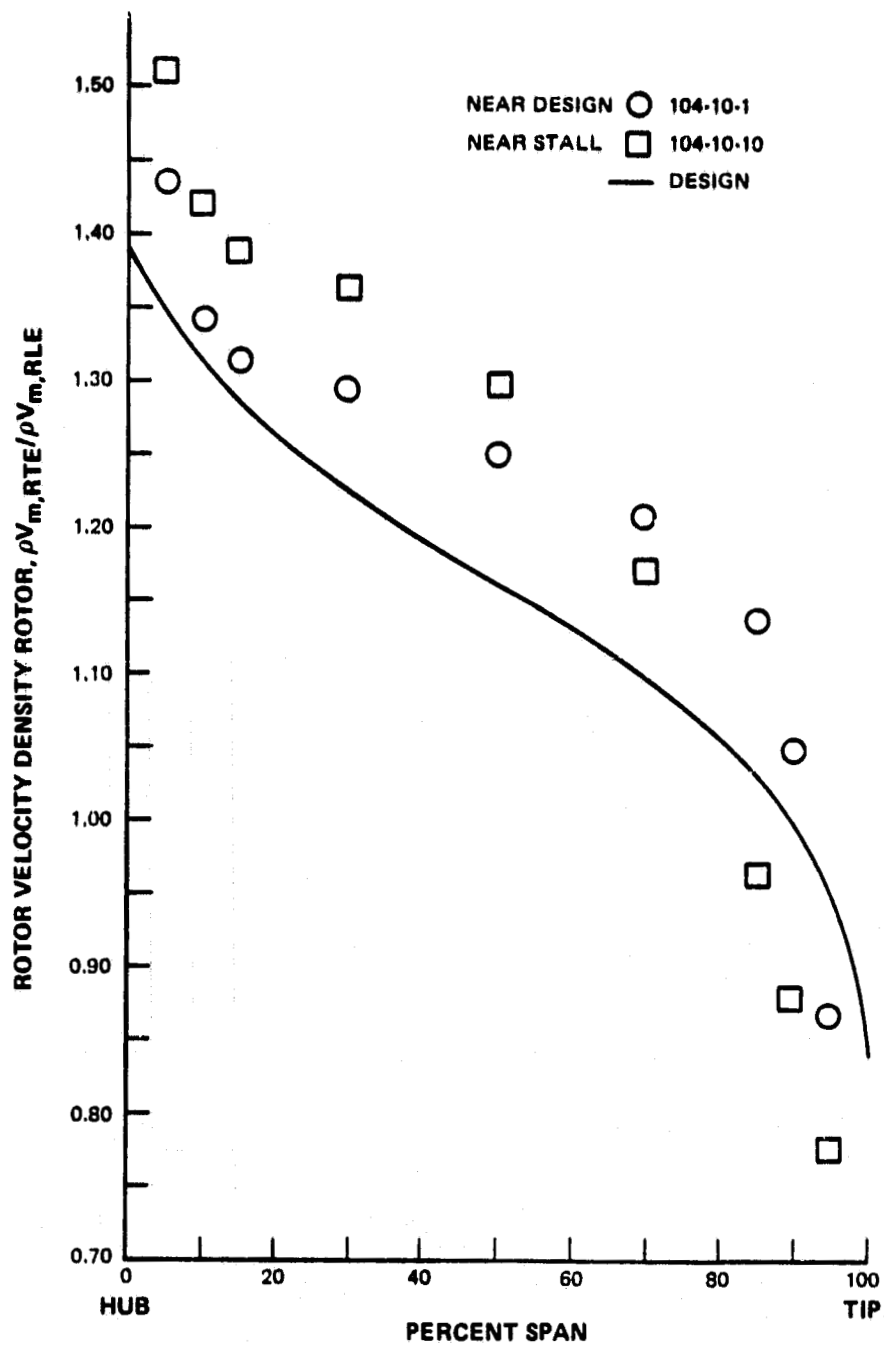


Figure 26 Rotor Velocity Density Ratio as a Function of Percent Span at Rotor Trailing Edge

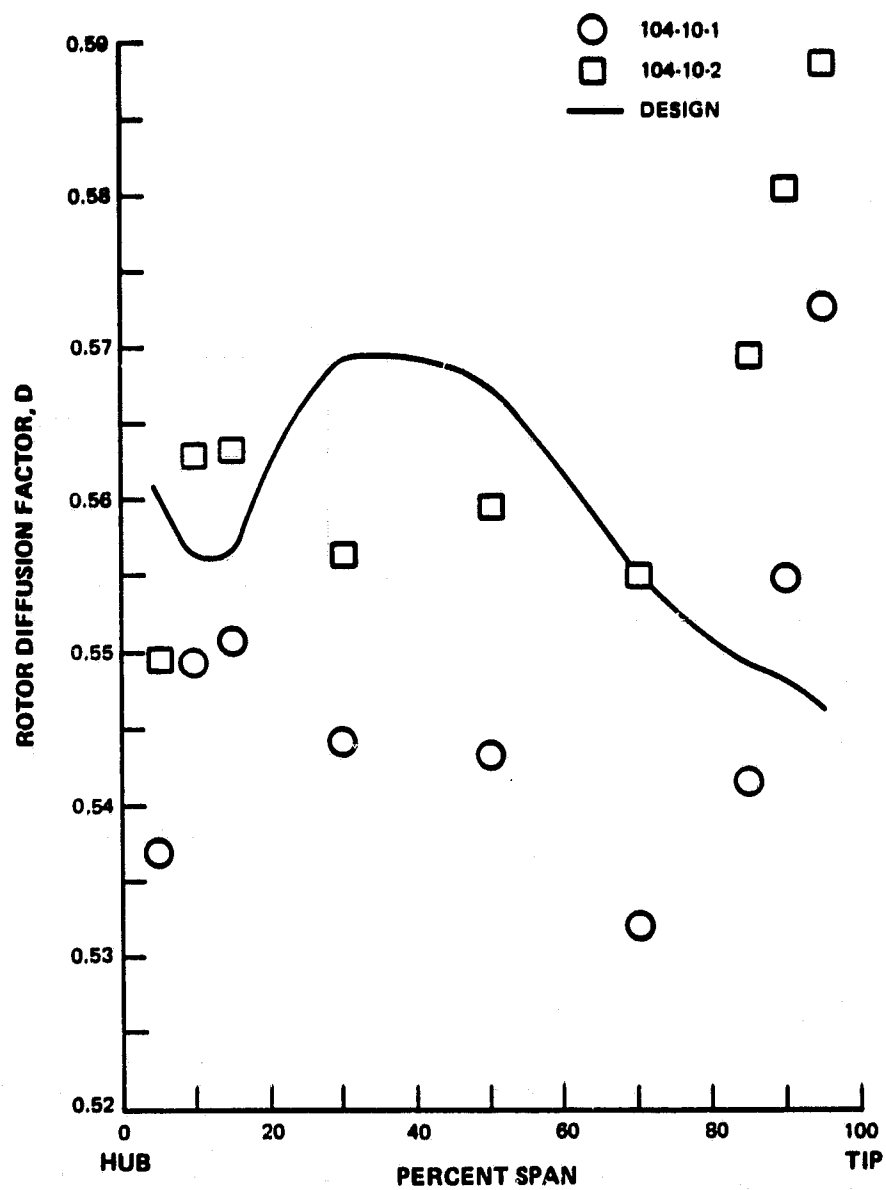


Figure 27 Rotor Diffusion Factor as a Function of Percent Span at Rotor Trailing Edge

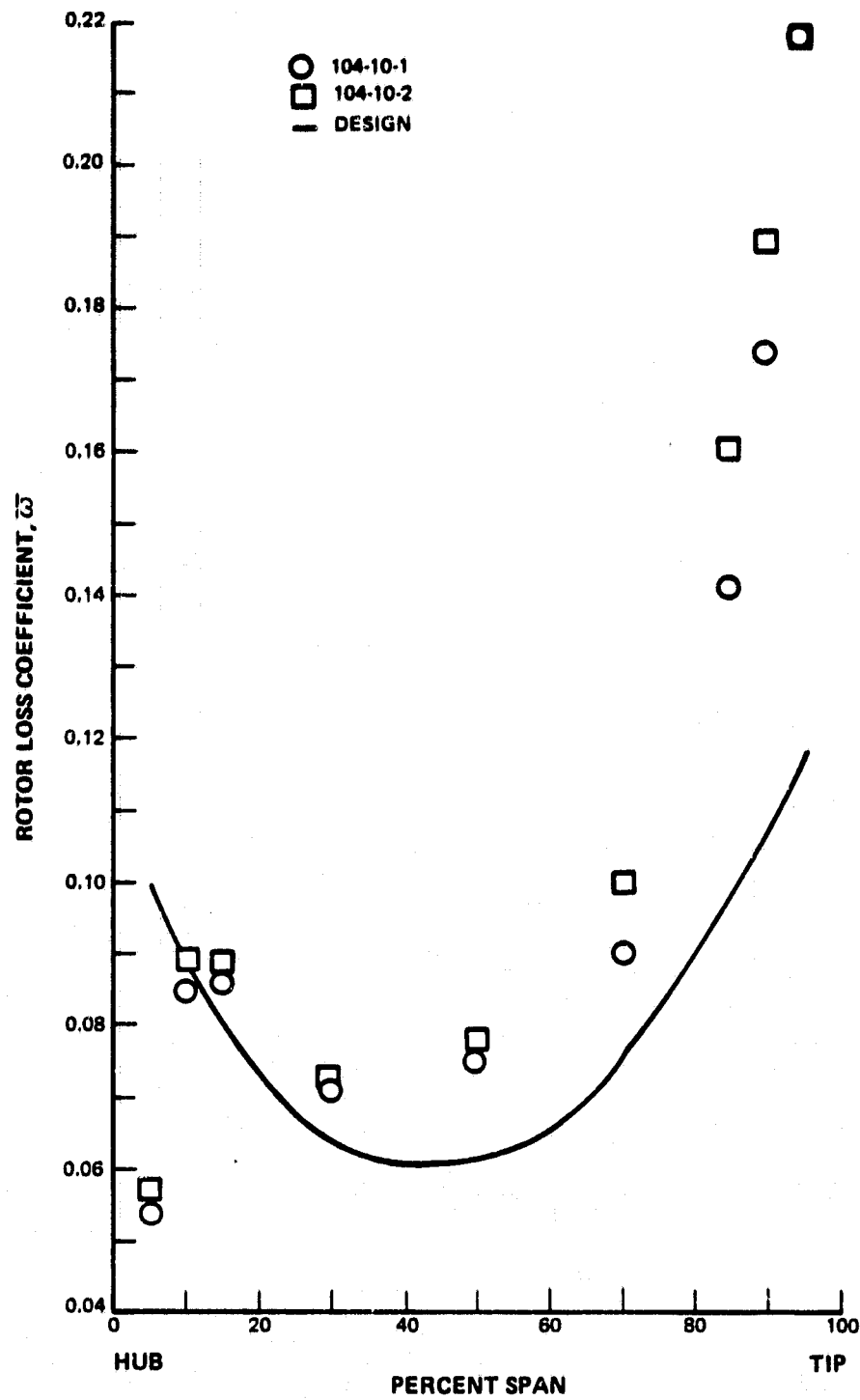


Figure 28 Rotor Loss Coefficient as a Function of Percent Span at Rotor Trailing Edge

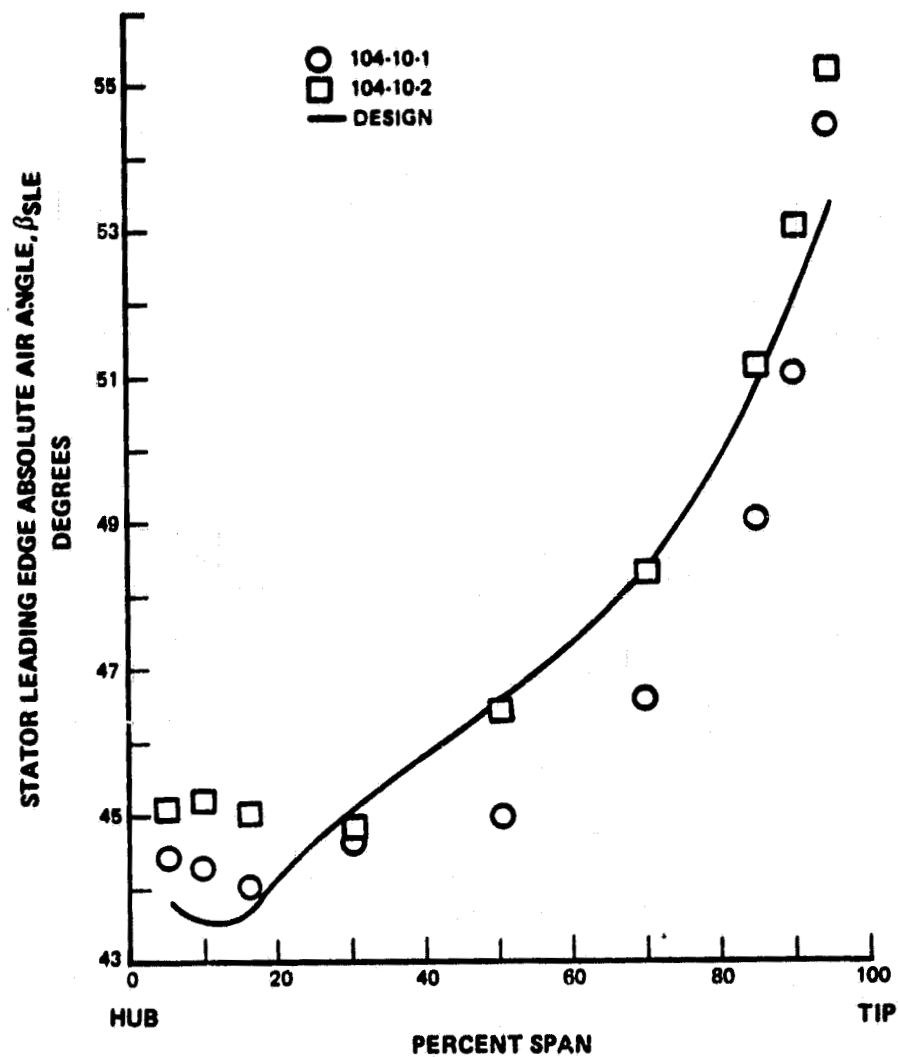


Figure 29 Stator Leading Edge Absolute Air Angle as a Function of Percent Span at Stator Trailing Edge

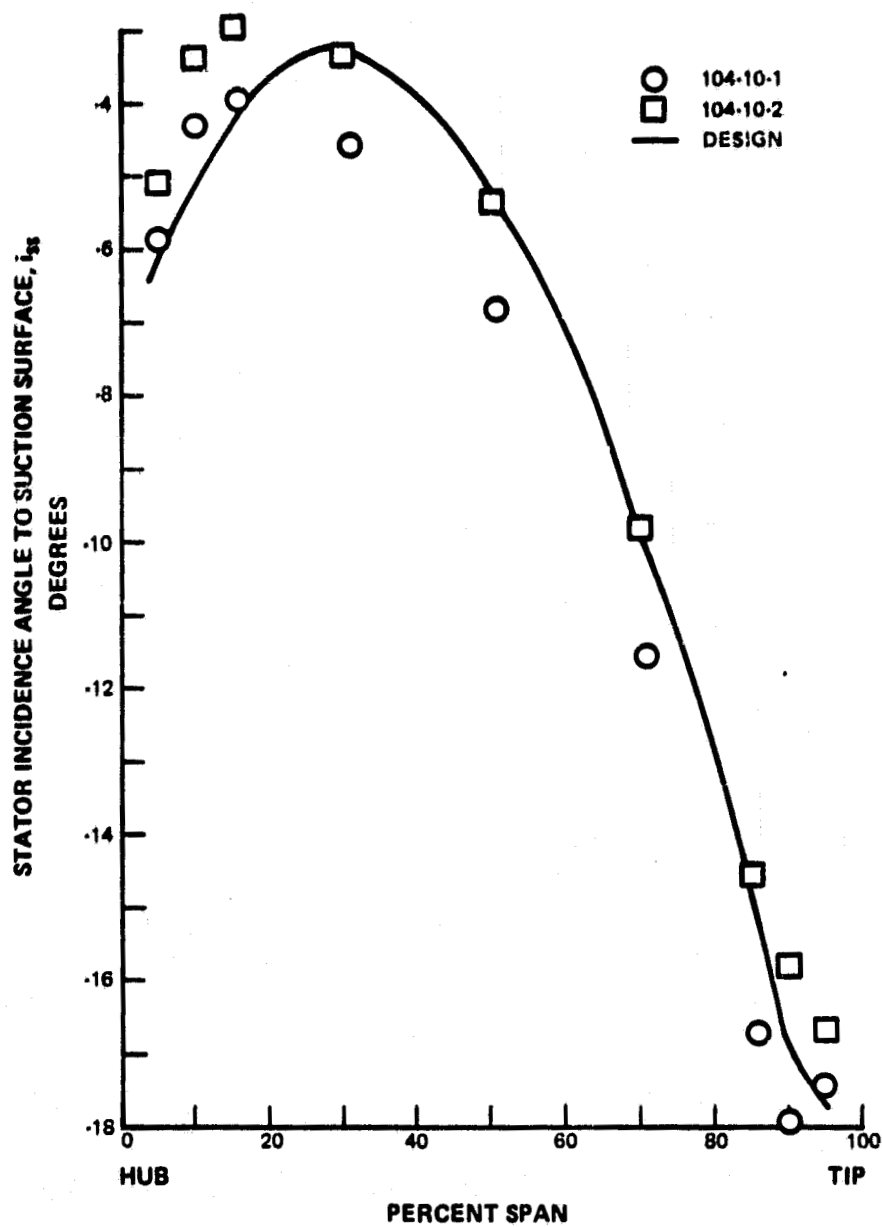


Figure 30 Stator Incidence Angle as a Function of Percent Span at Stator Trailing Edge



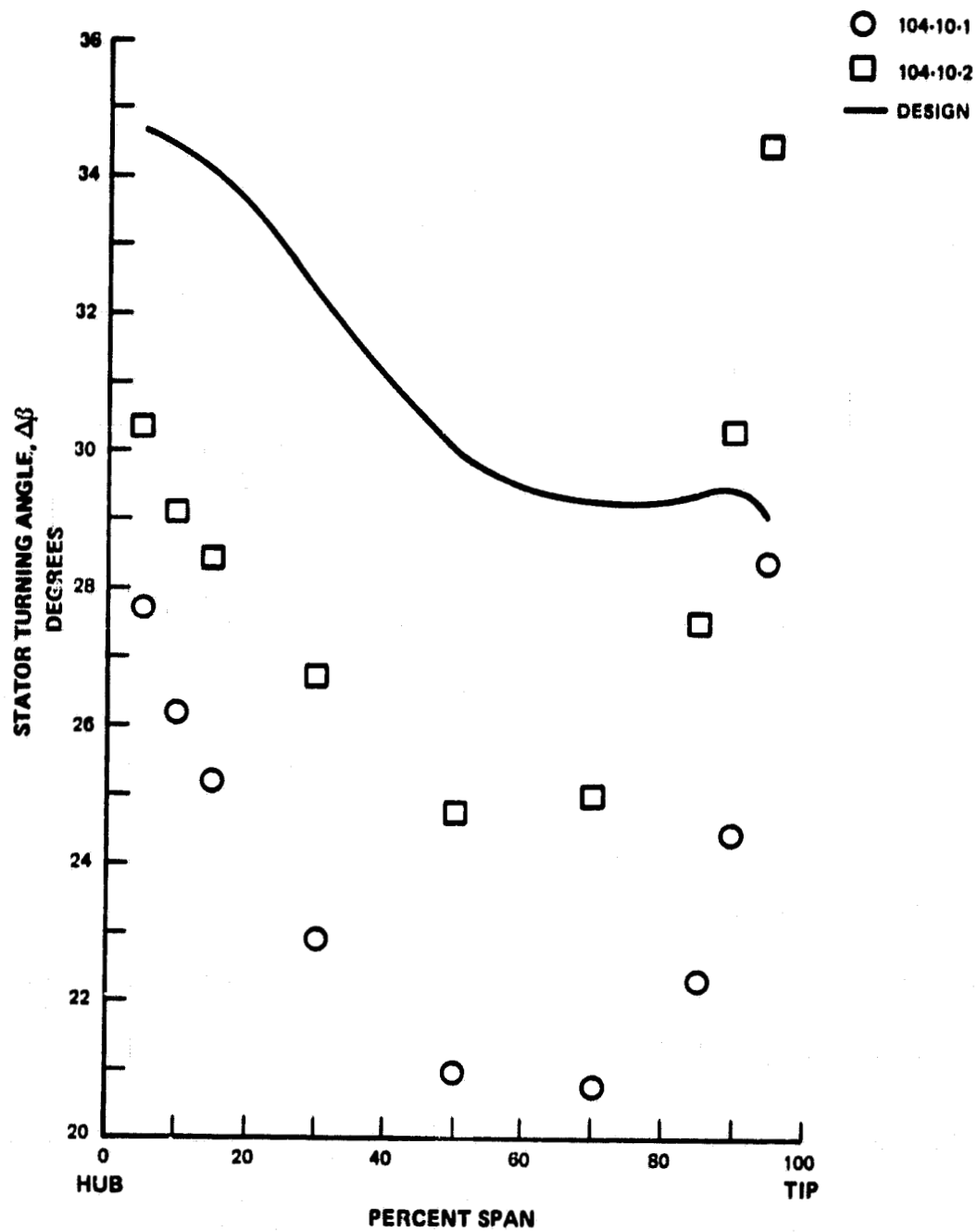


Figure 31 Stator Turning Angle as a Function of Percent Span at Stator Trailing Edge

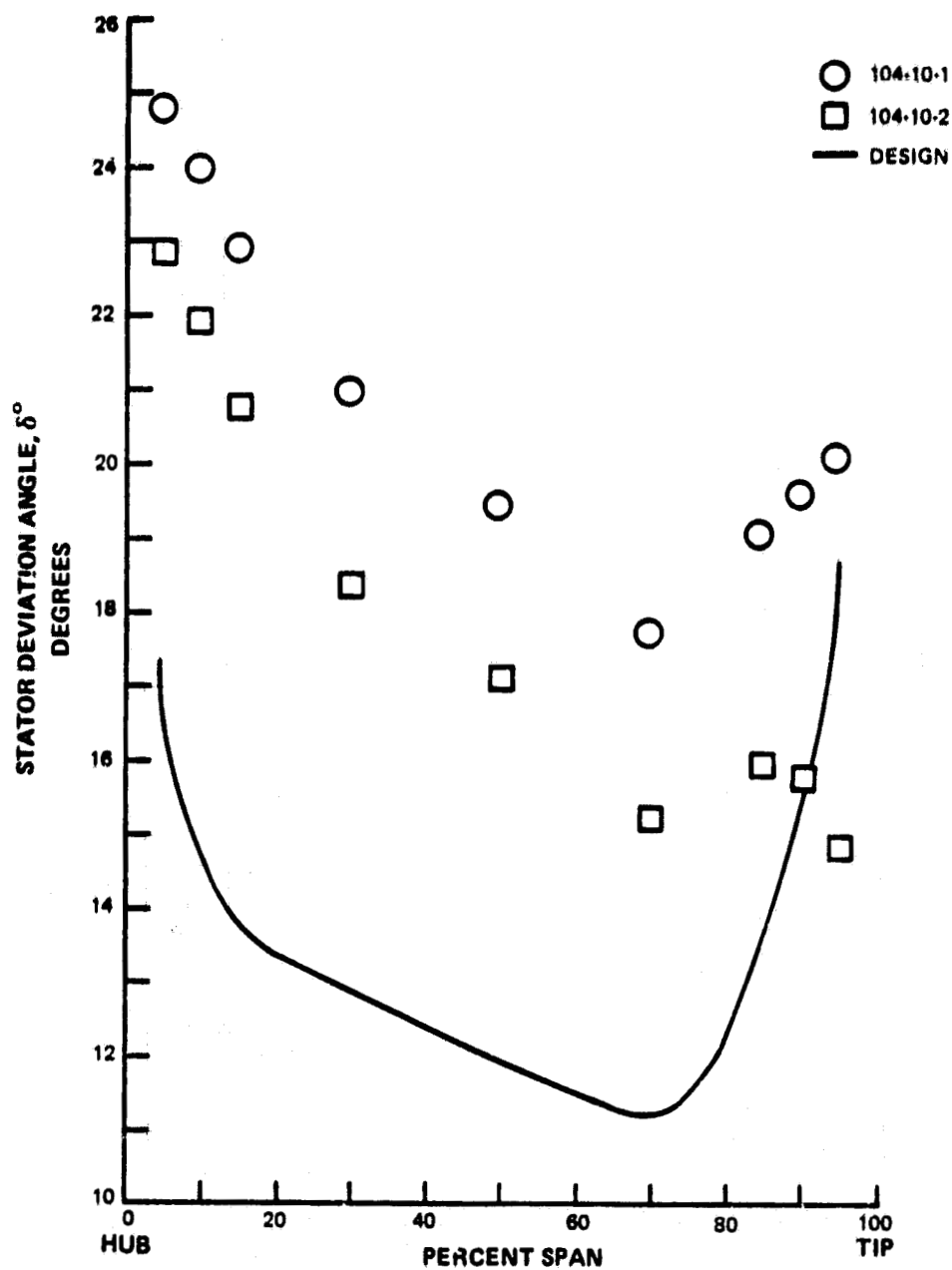


Figure 32 Stator Deviation Angle as a Function of Percent Span at Stator Trailing Edge

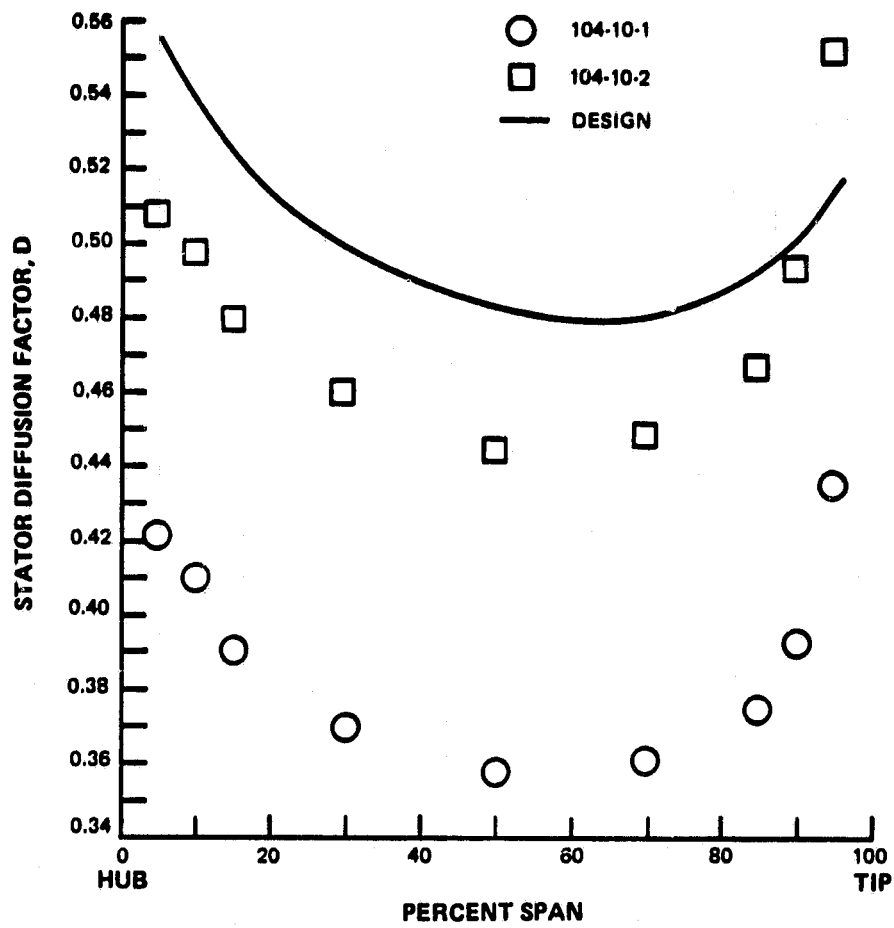


Figure 33 Stator Diffusion Factor as a Function of Percent Span at Stator Trailing Edge

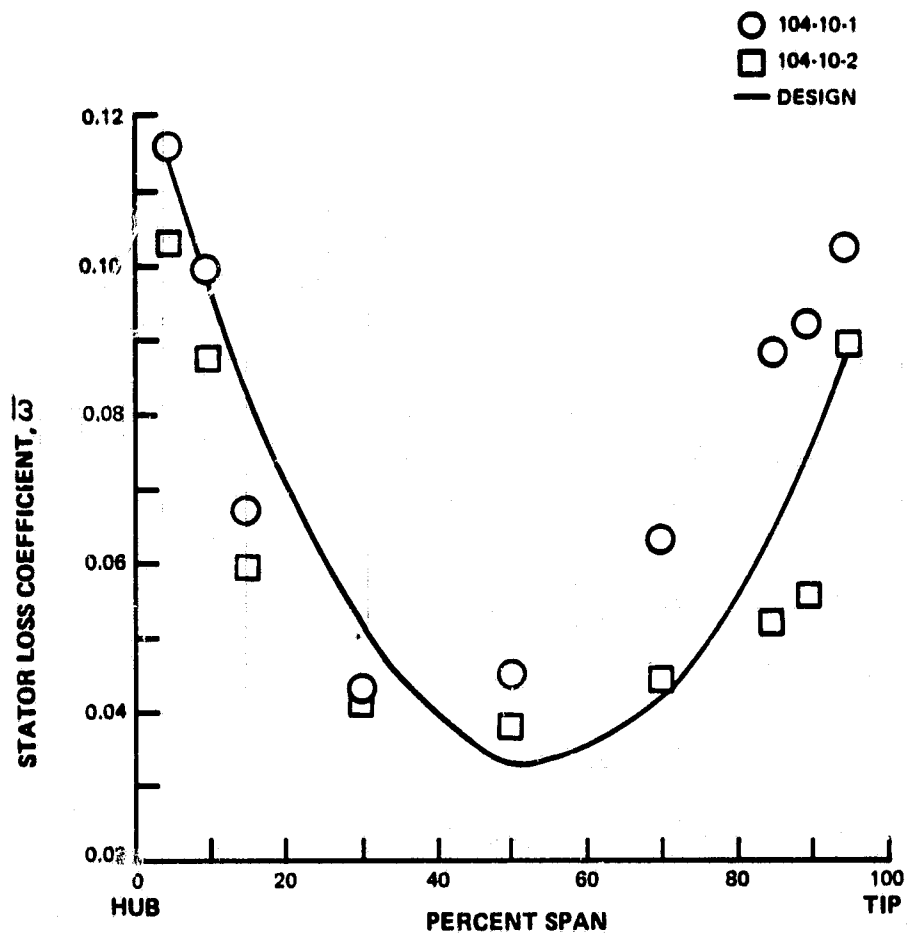


Figure 34 Stator Loss Coefficient as a Function of Percent Span at Stator Trailing Edge

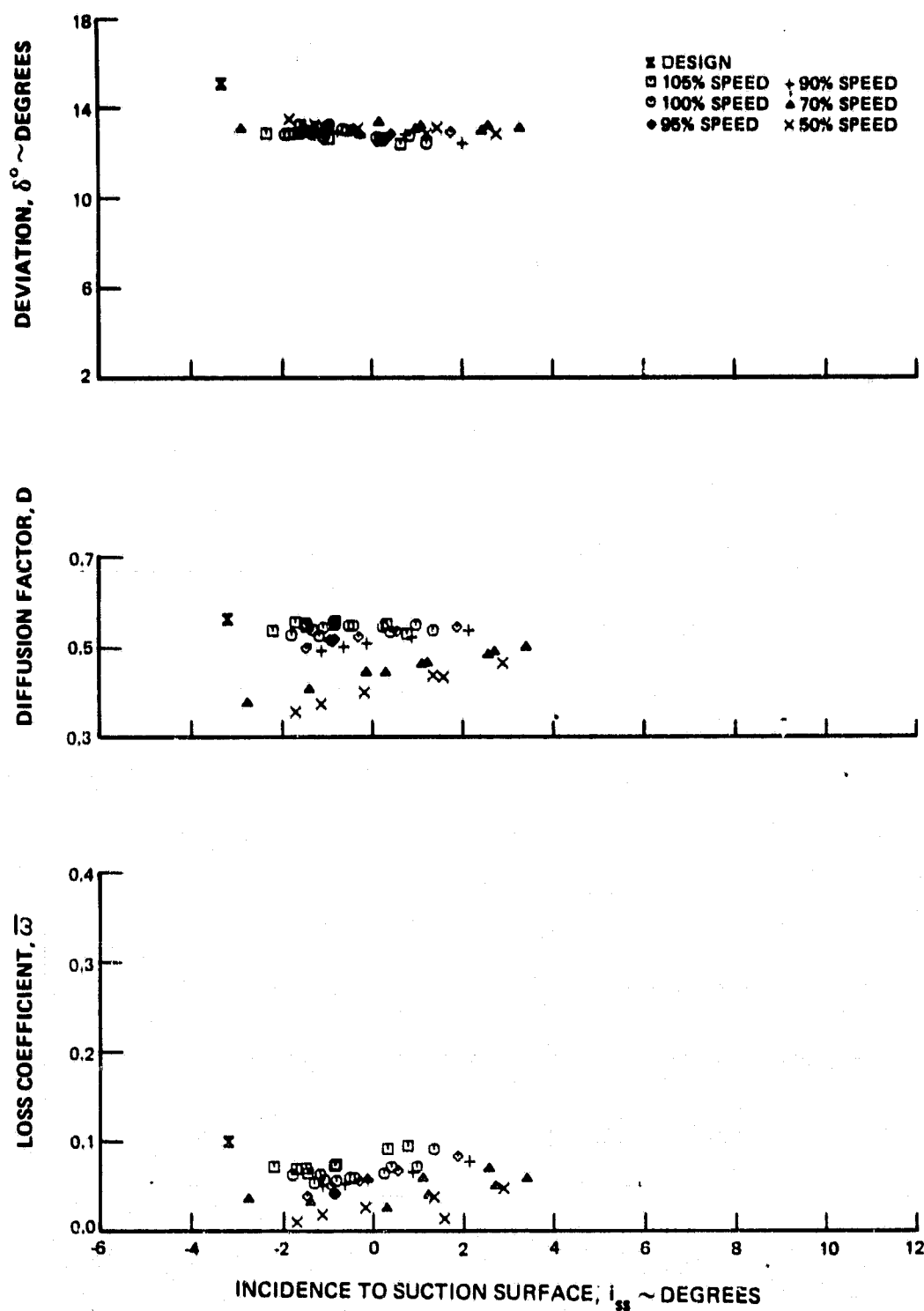


Figure 35 Rotor Blade Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 5 Percent Span at Design Stagger Angles

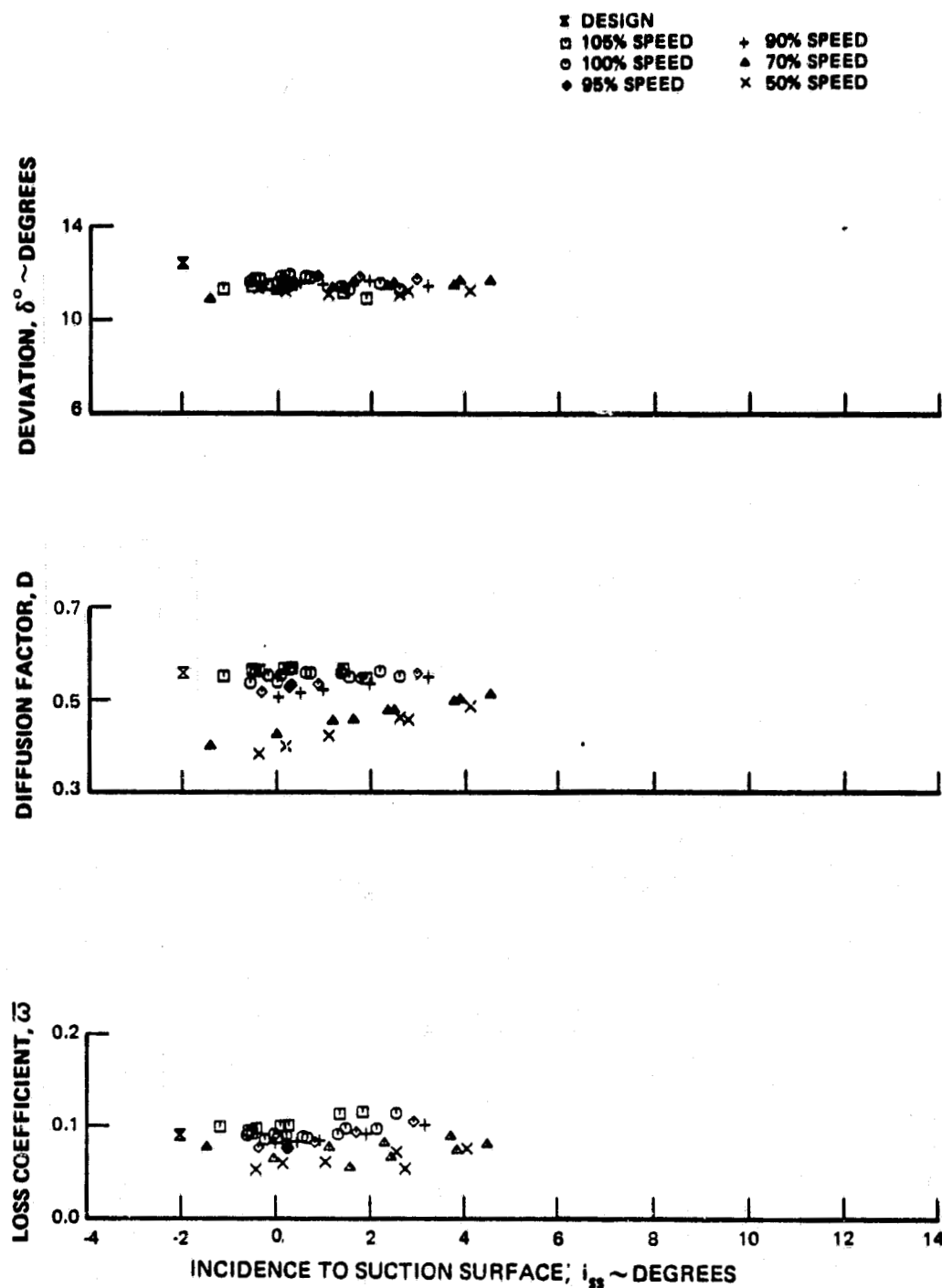


Figure 36 Rotor Blade Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 10 Percent Span at Design Stagger Angles

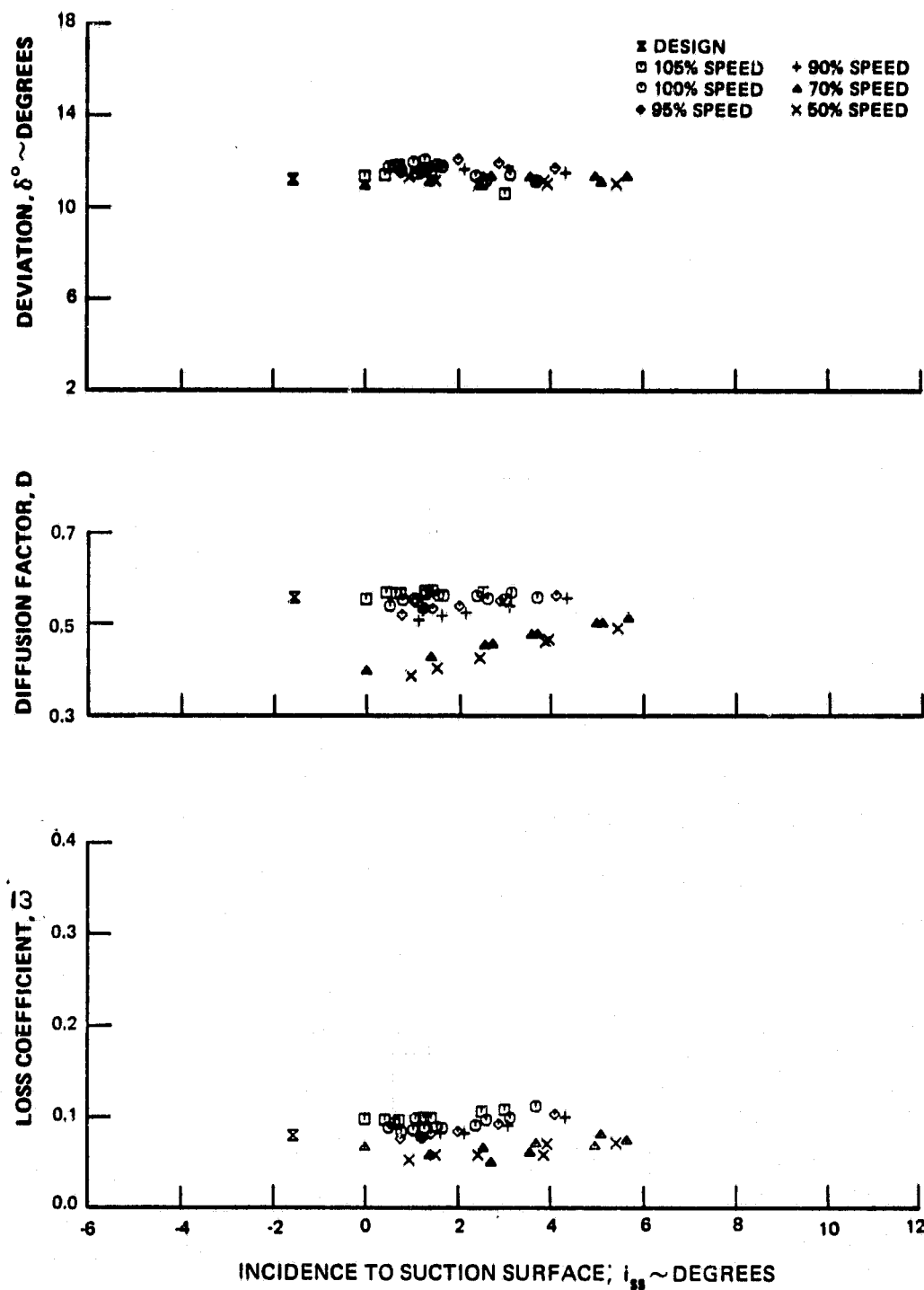


Figure 37 Rotor Blade Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 15 Percent Span at Design Stagger Angles

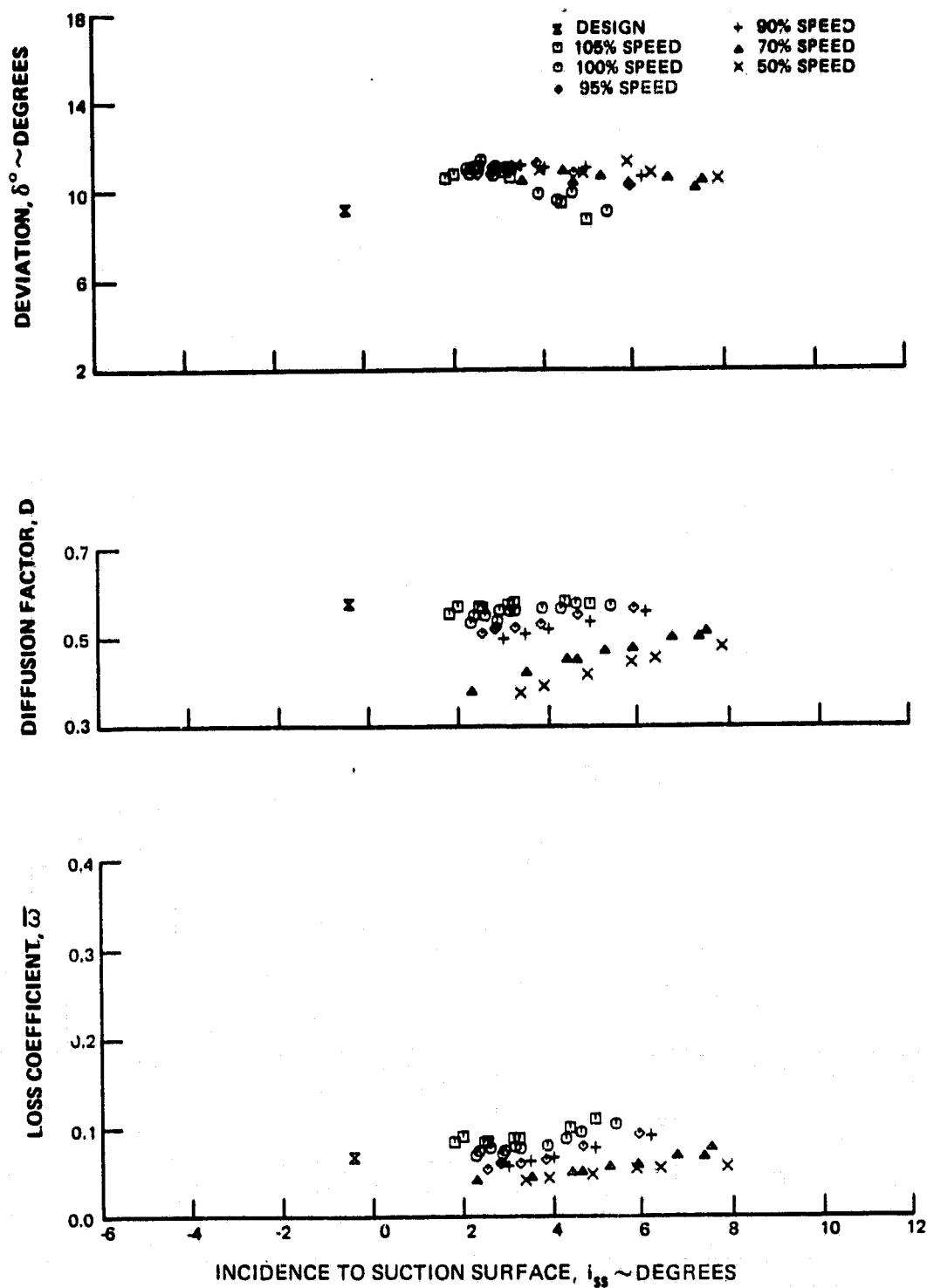


Figure 38 Rotor Blade Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 30 Percent Span and Design Stagger Angles



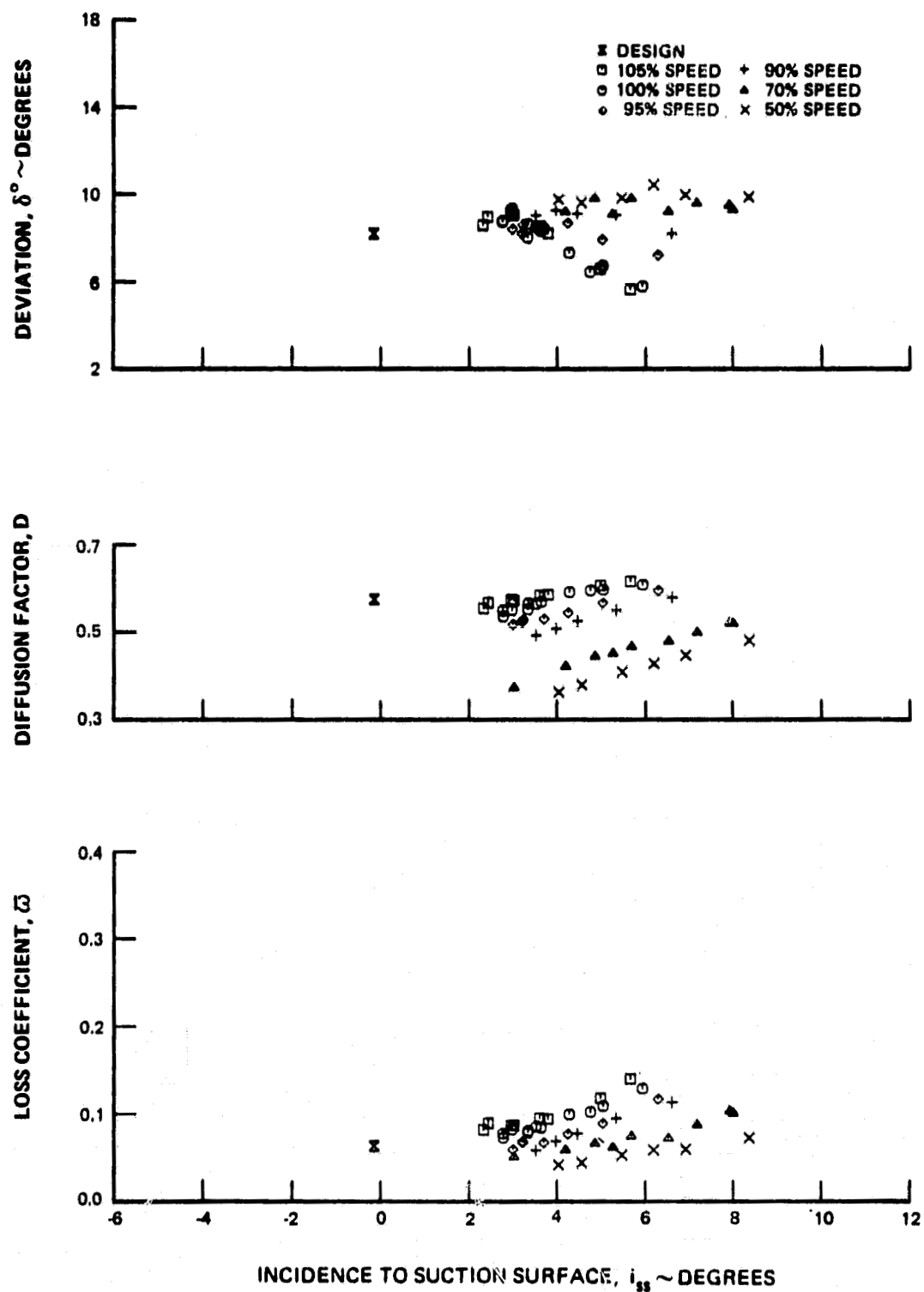


Figure 39 Rotor Blade Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 50 Percent Span at Design Stagger Angles

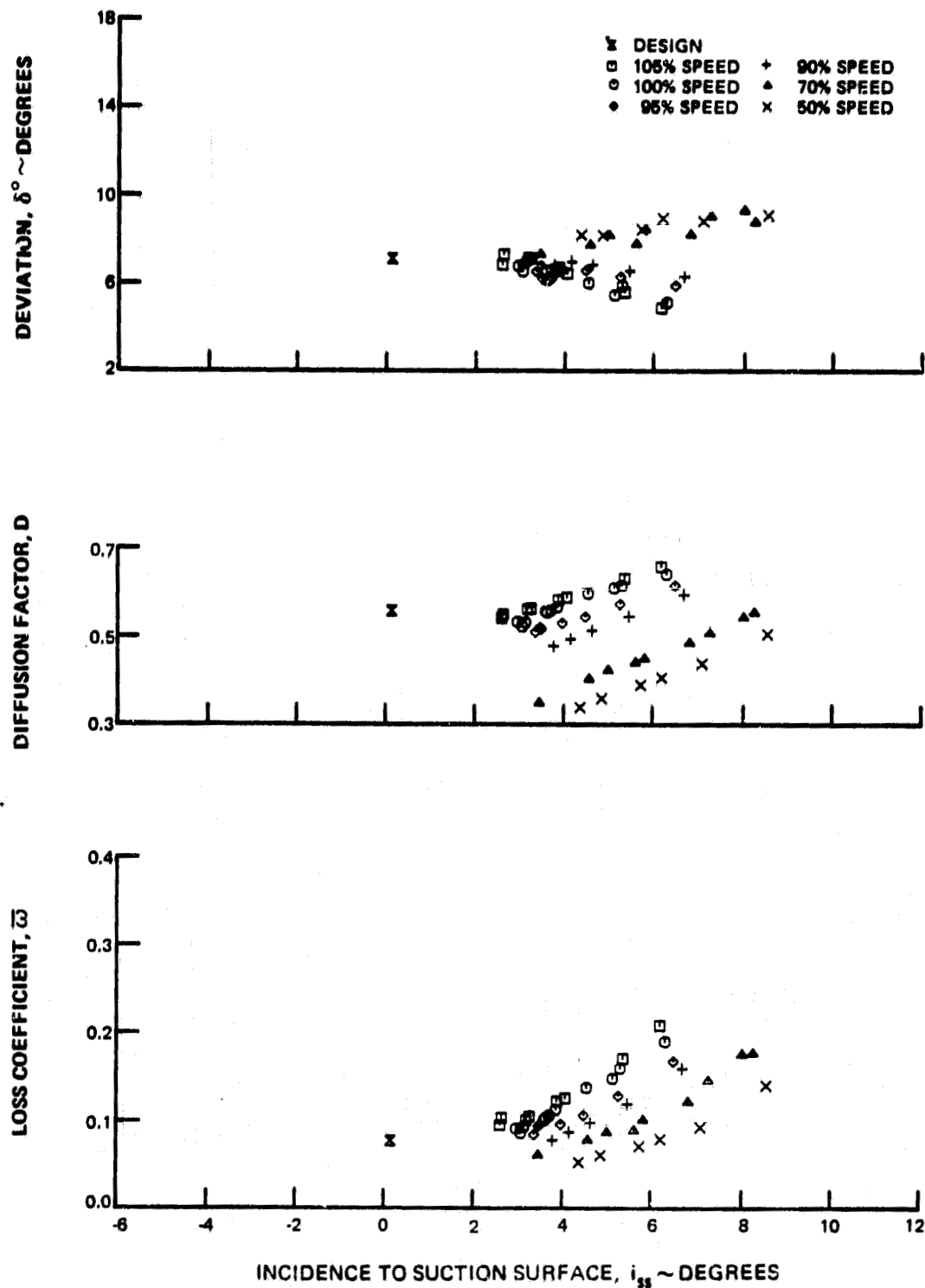


Figure 40 Rotor Blade Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 70 Percent Span at Design Stagger Angles

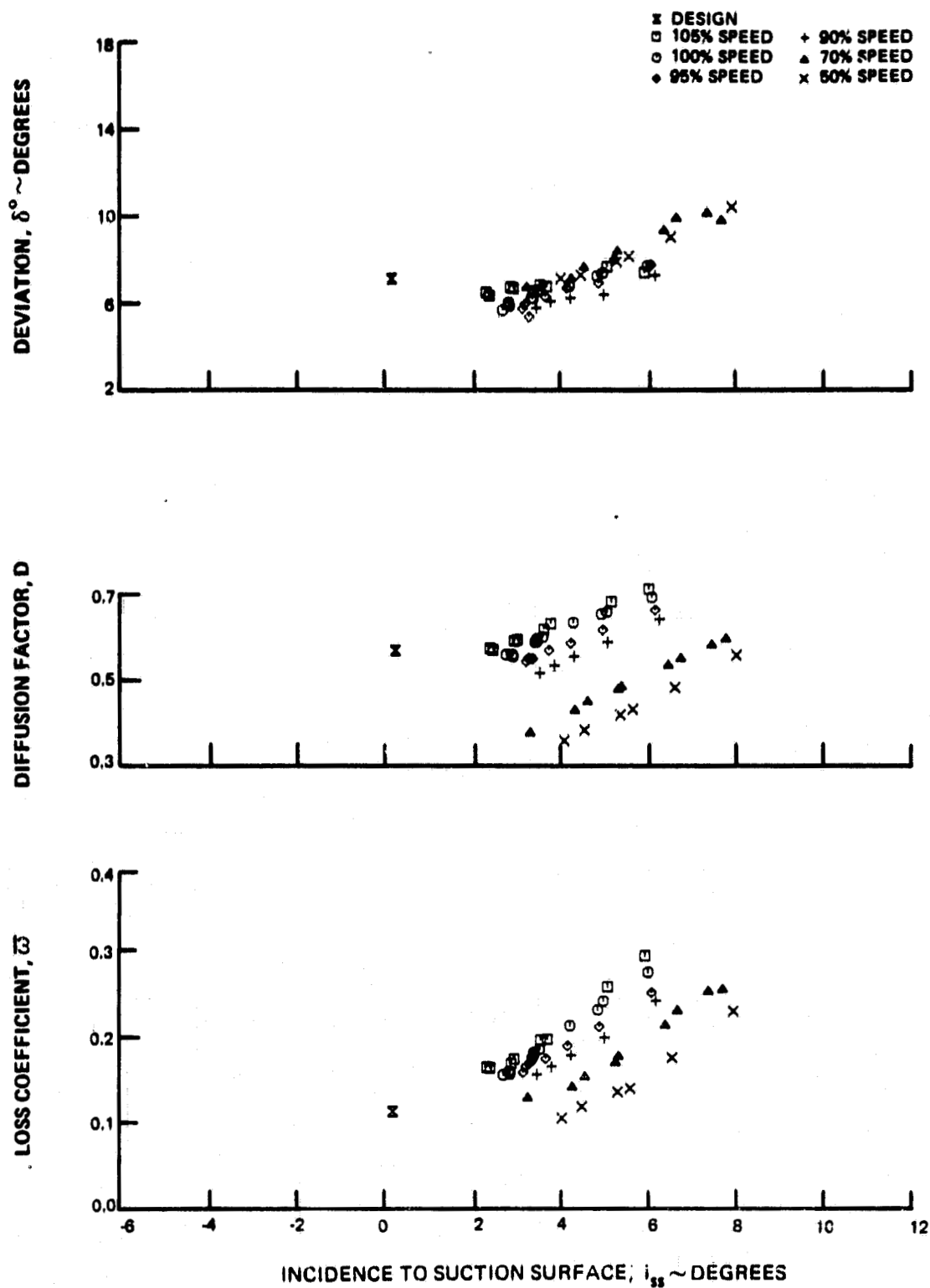


Figure 41 Rotor Blade Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 85 Percent Span at Design Stagger Angles

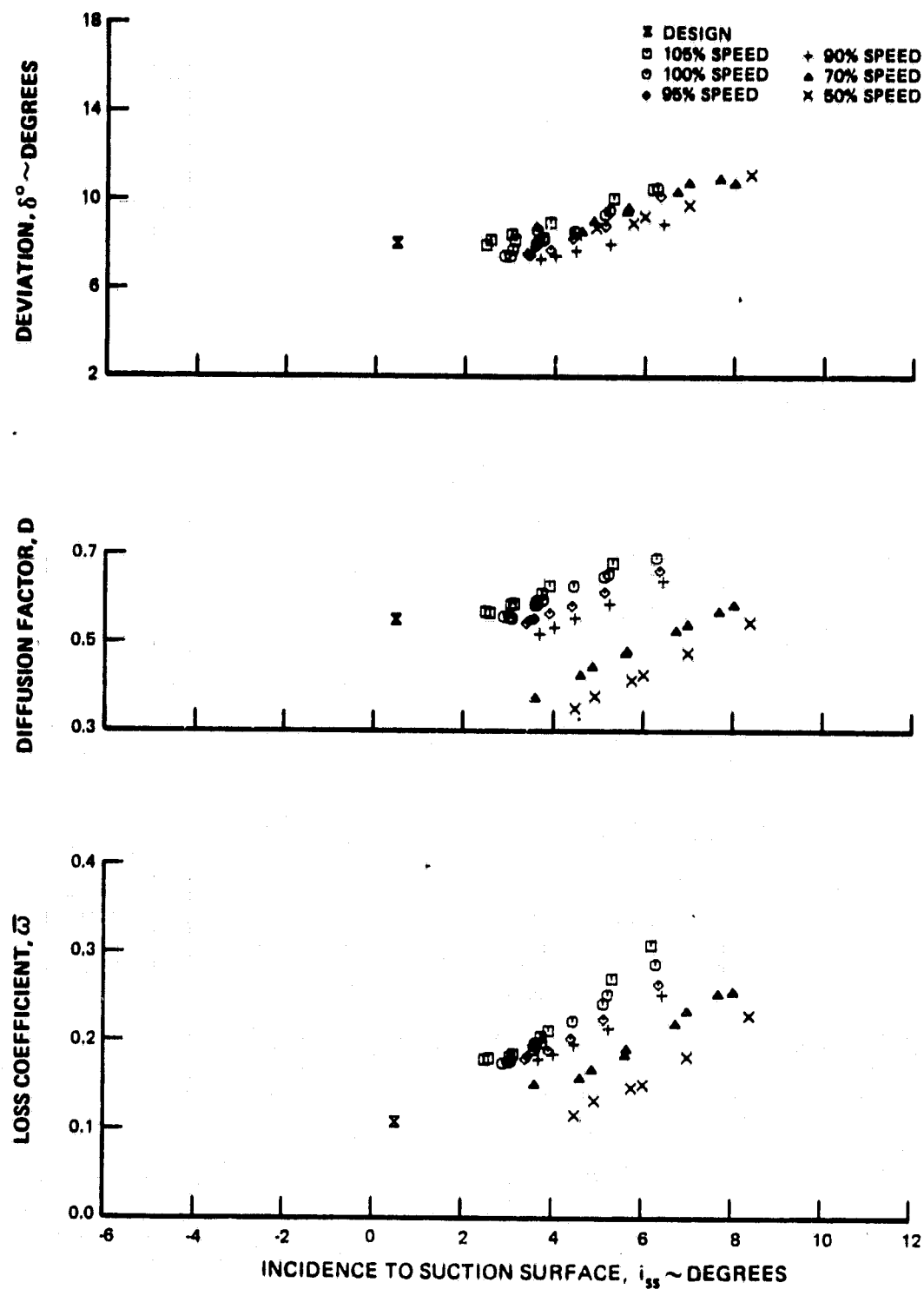


Figure 42 Rotor Blade Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 90 Percent Span at Design Stagger Angles

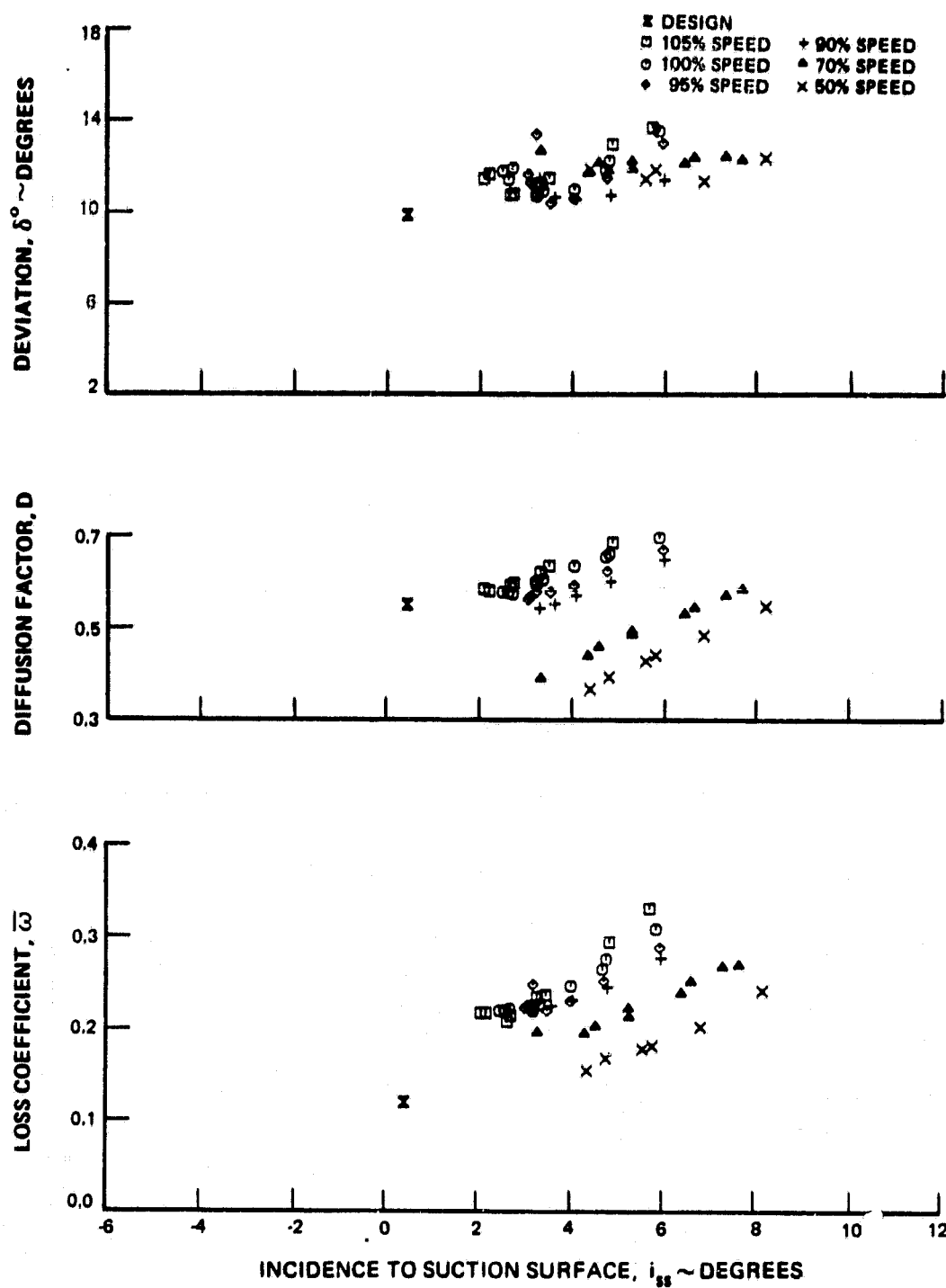


Figure 43 Rotor Blade Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 95 Percent Span at Design Stagger Angles

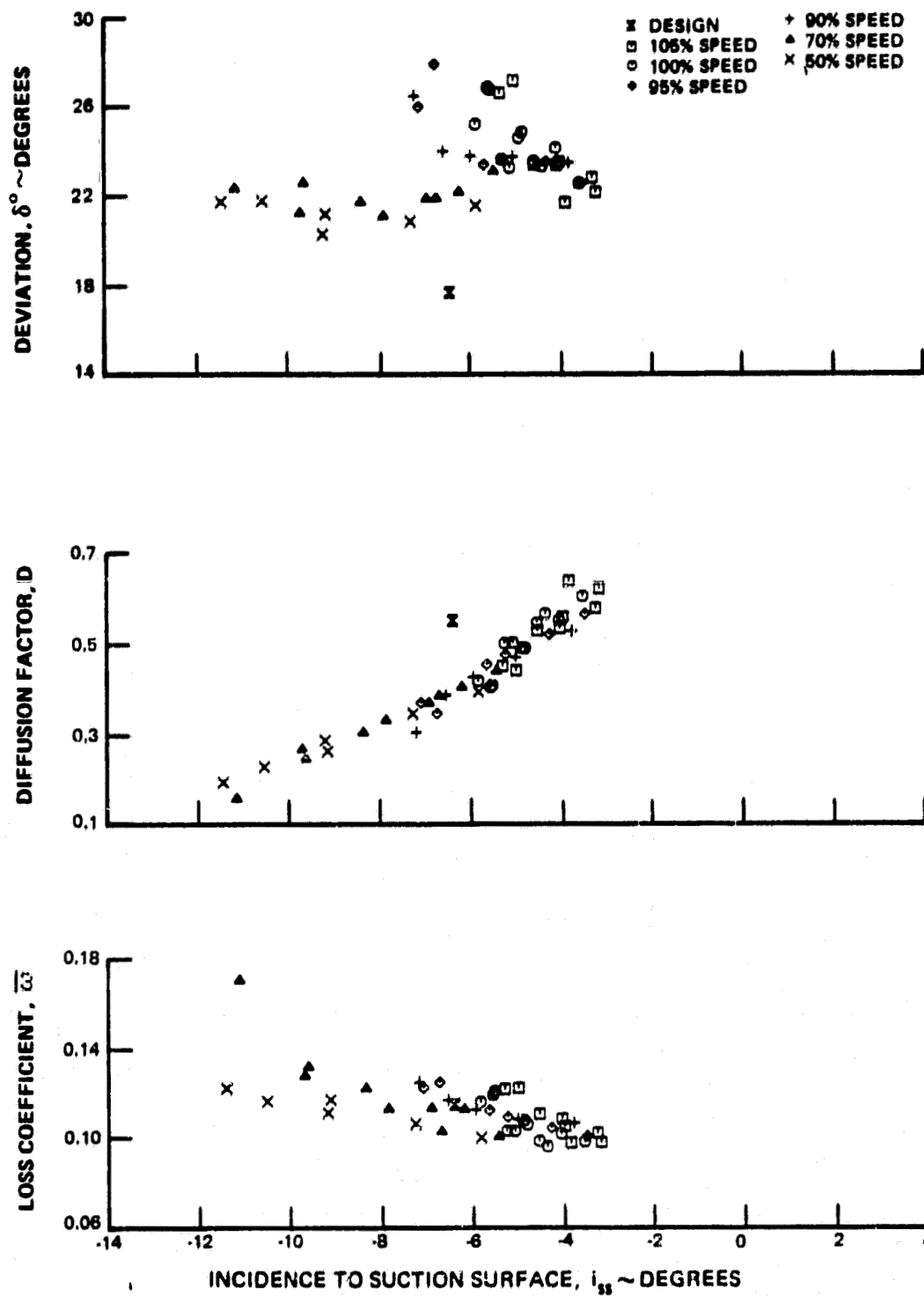


Figure 44 Stator Vane Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 5 Percent Span at Design Stagger Angles

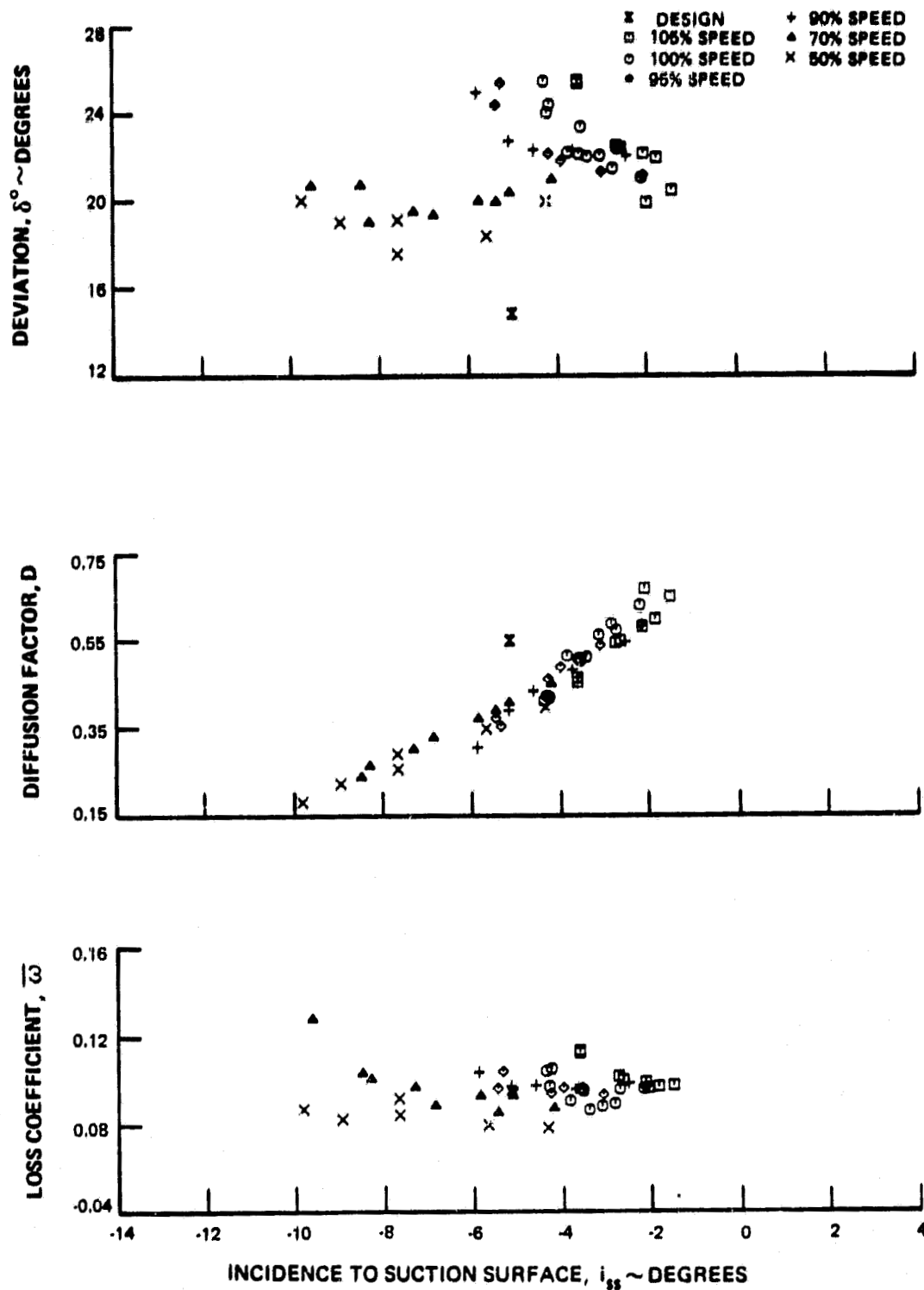


Figure 45 Stator Vane Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 10 Percent Span at Design Stagger Angles

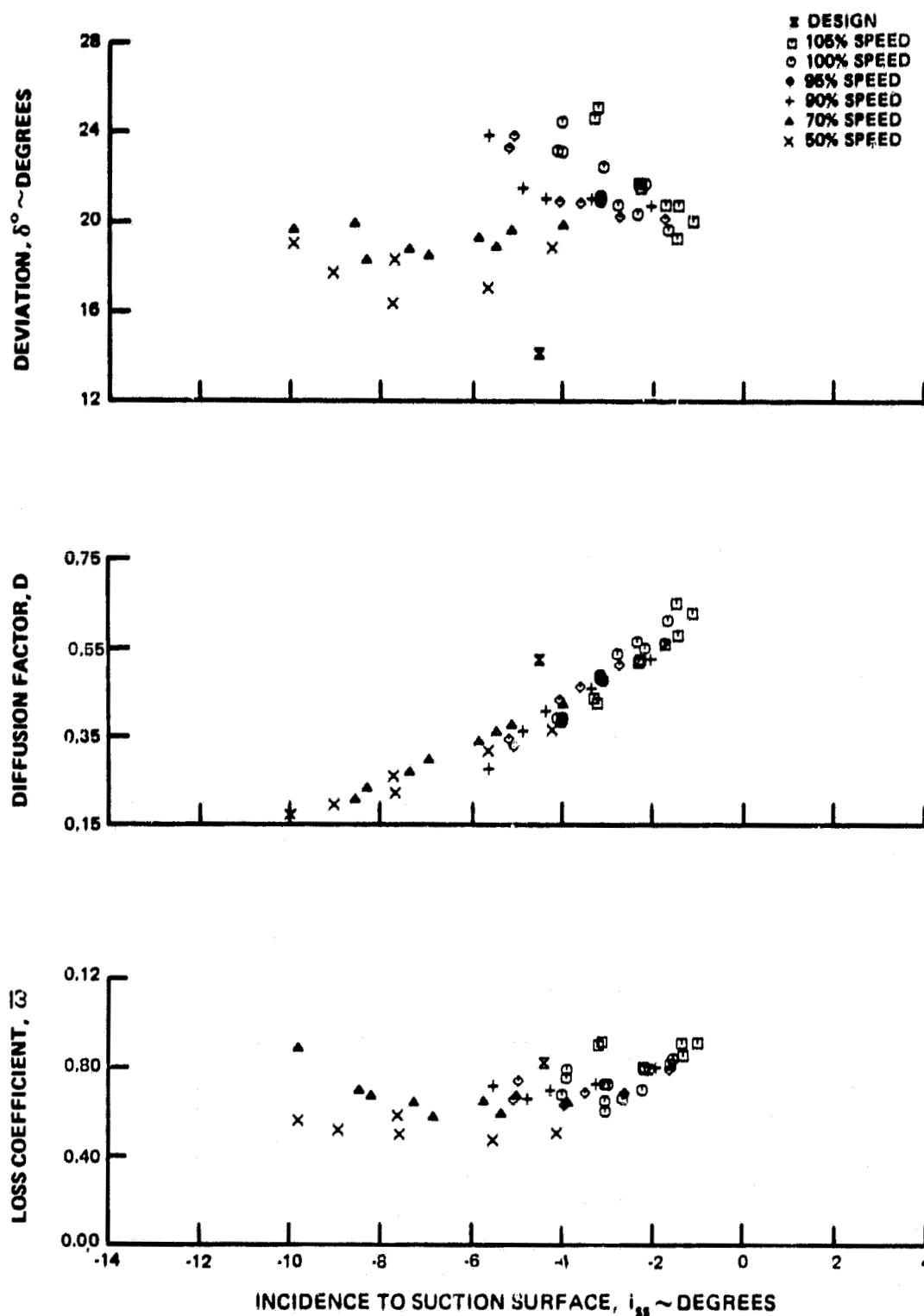


Figure 46 Stator Vane Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of suction Surface Incidence Angle at 15 Percent Span at Design Stagger Angles



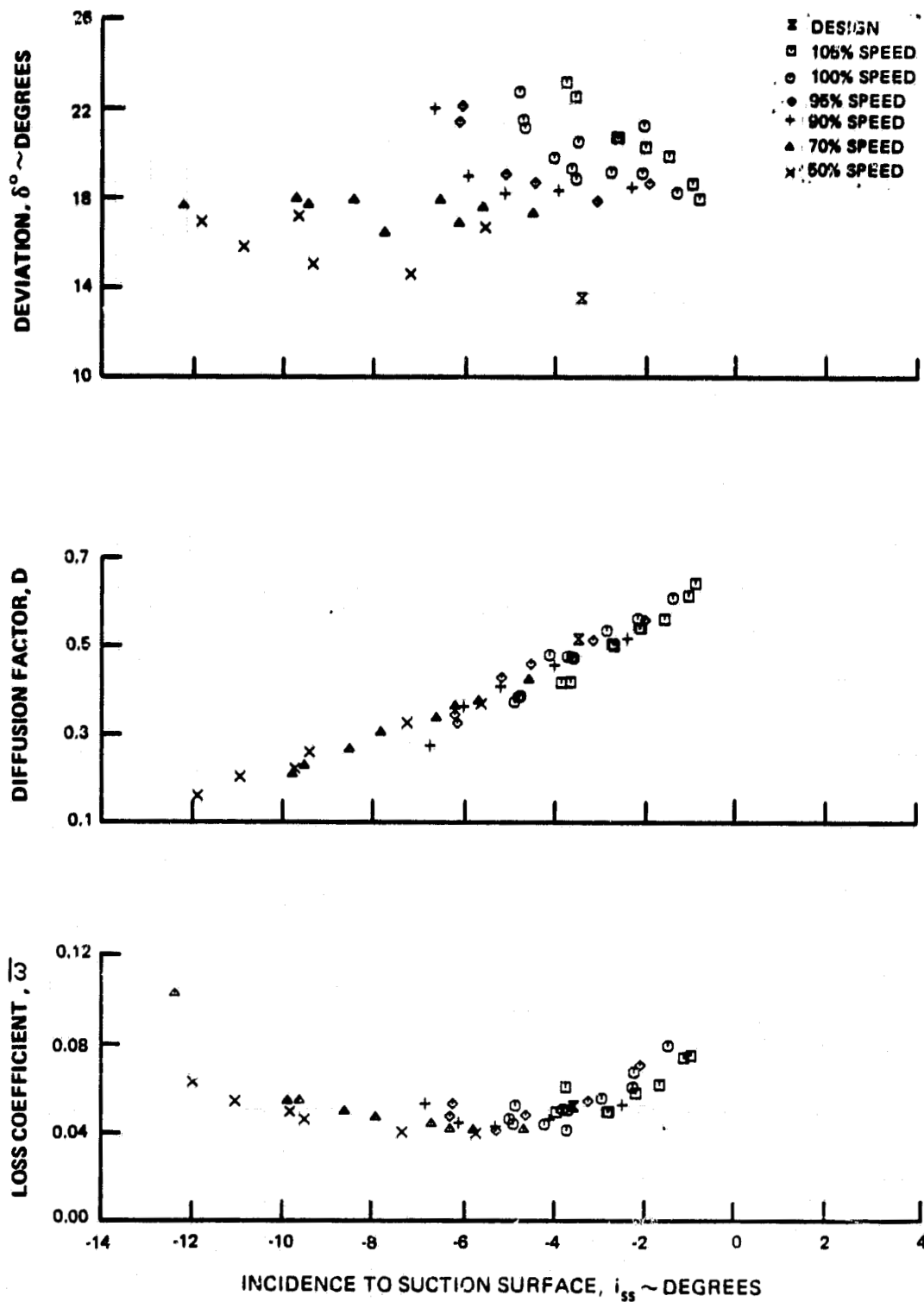


Figure 47 Stator Vane Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 30 Percent Span at Design Stagger Angles

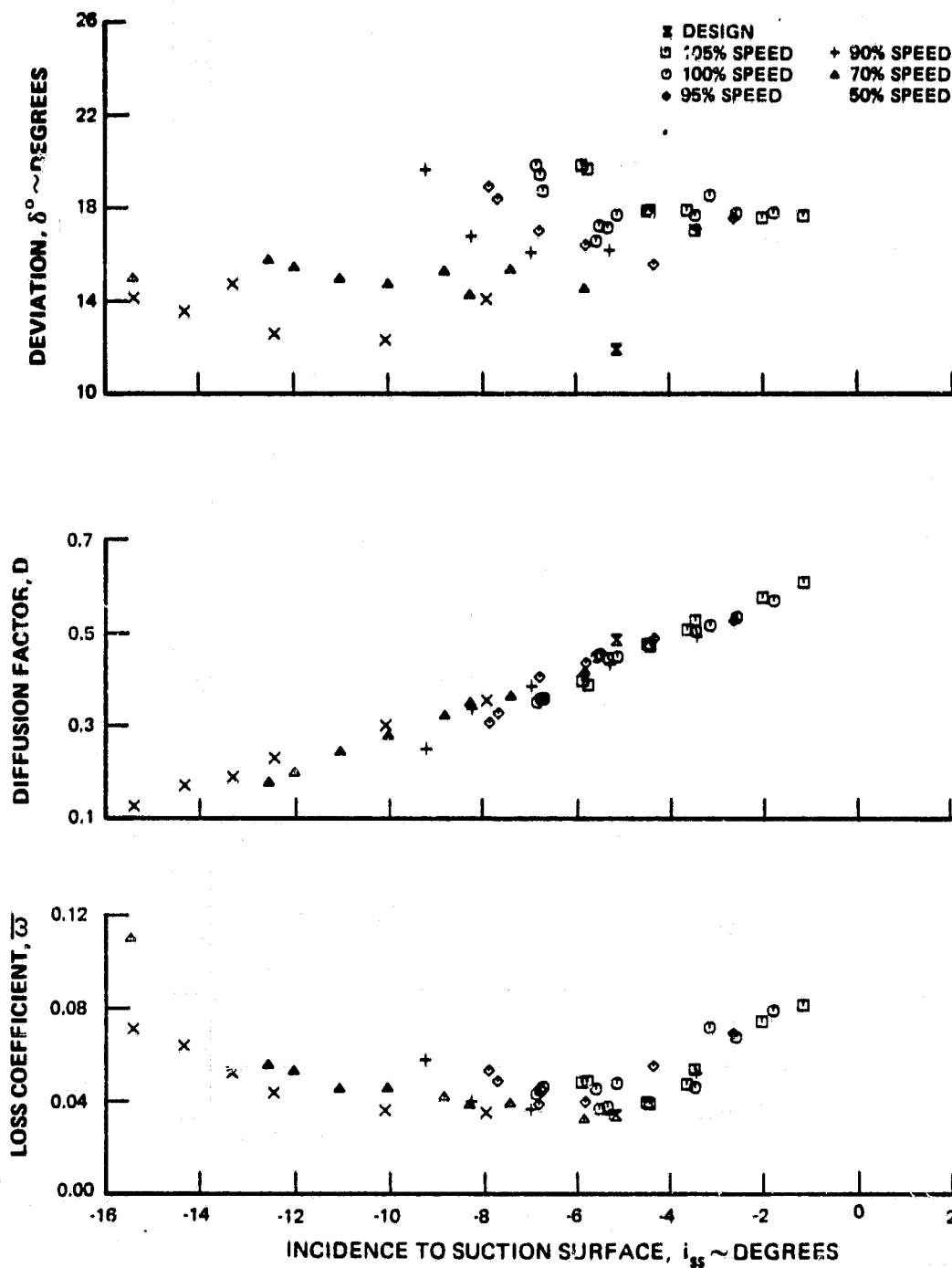


Figure 48 Stator Vane Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 50 Percent Span at Design Stagger Angles

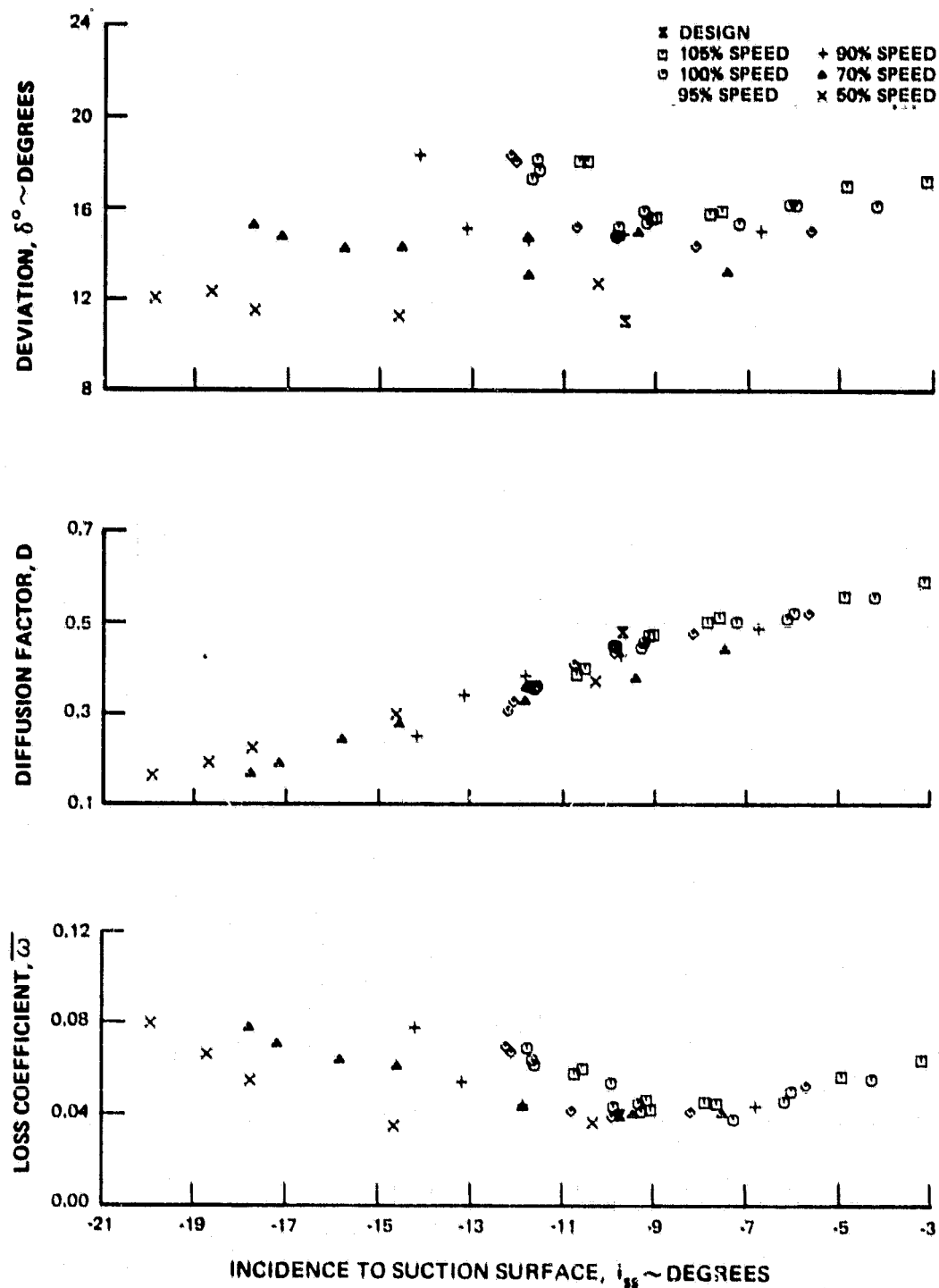


Figure 49 Stator Vane Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 70 Percent Span at Design Stagger Angles

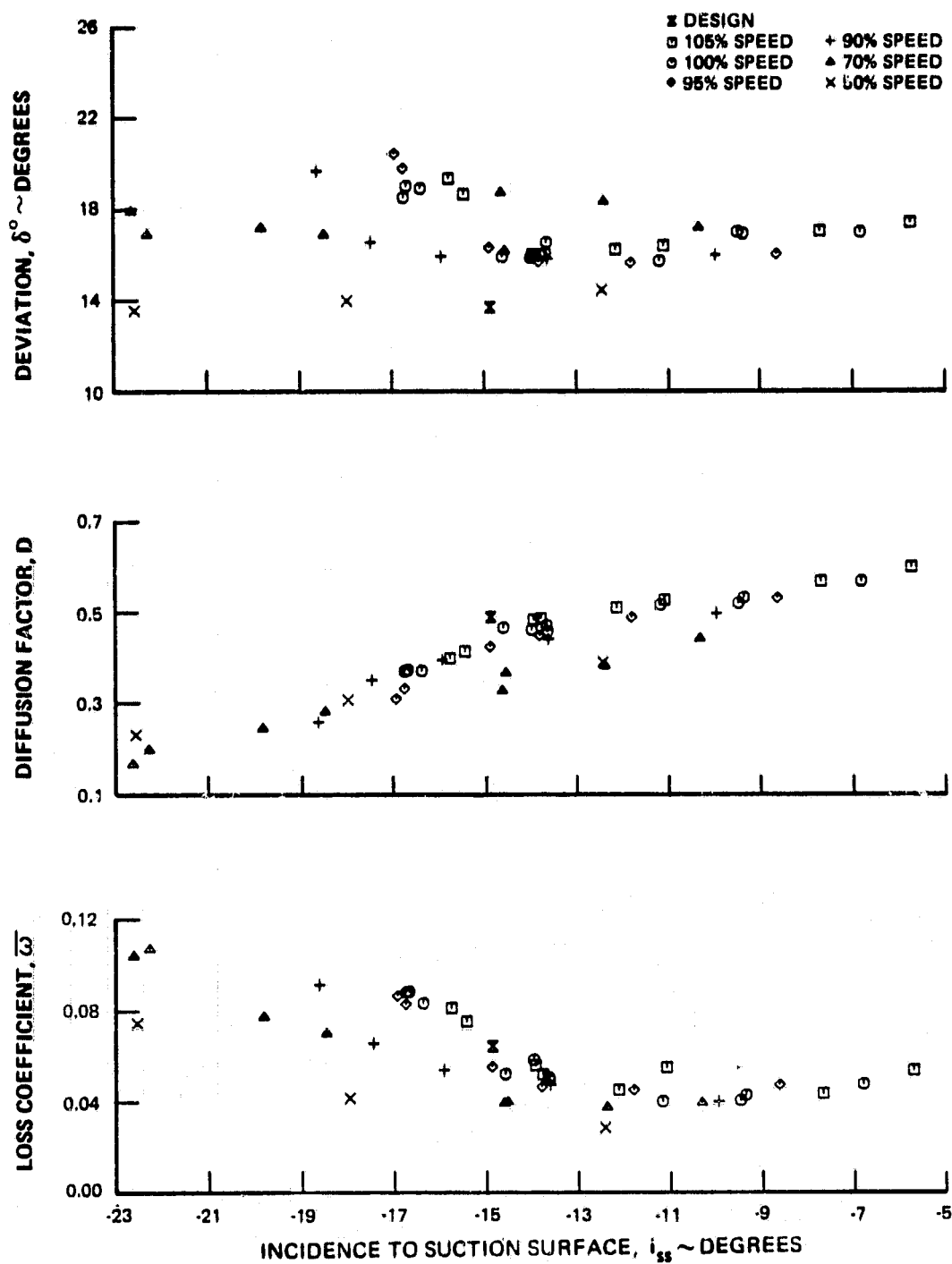


Figure 50 Stator Vane Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 85 Percent Span at Design Stagger Angles

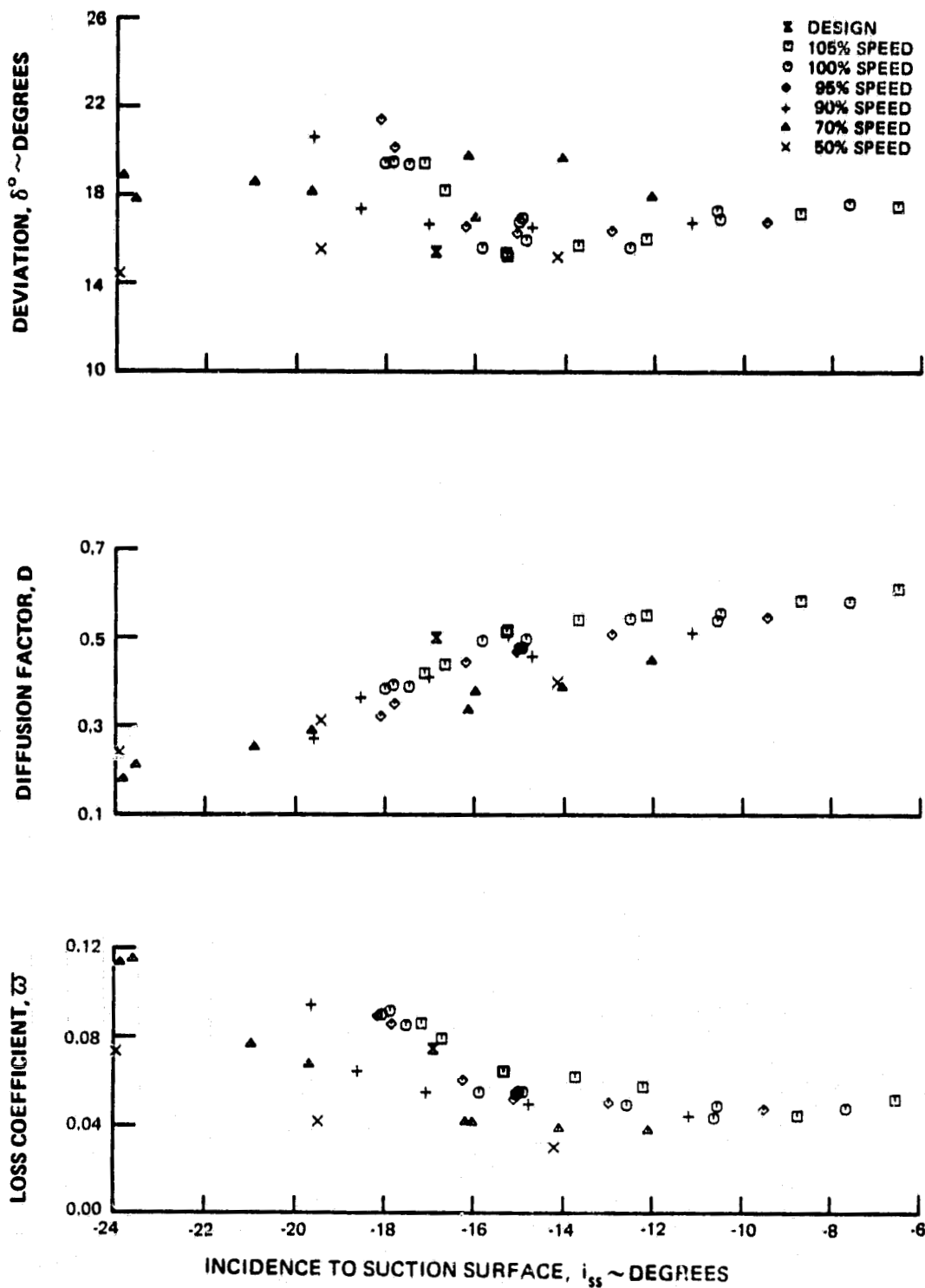


Figure 51 Stator Vane Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 90 Percent Span at Design Stagger Angles

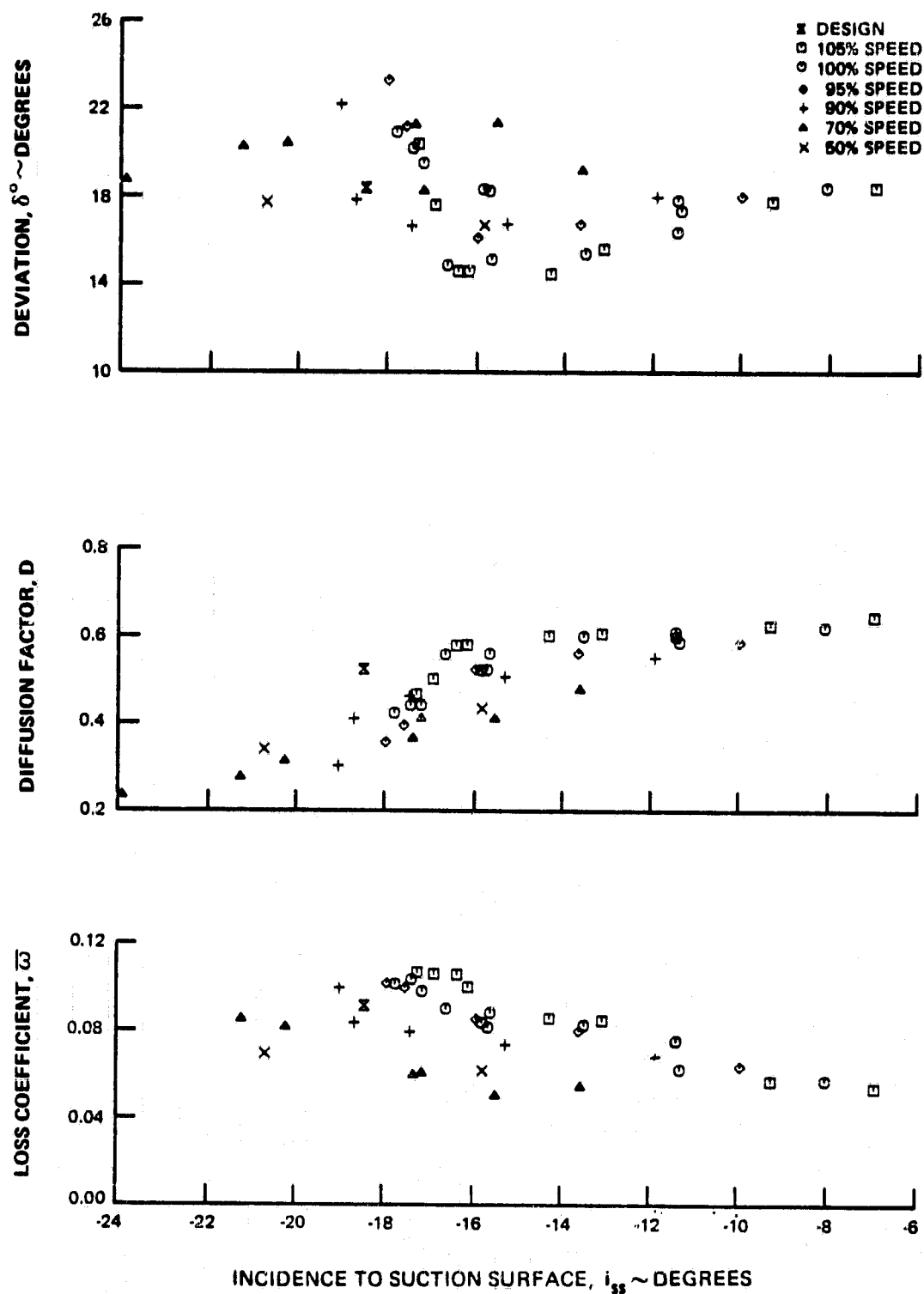


Figure 52 Stator Vane Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 95 Percent Span at Design Stagger Angles

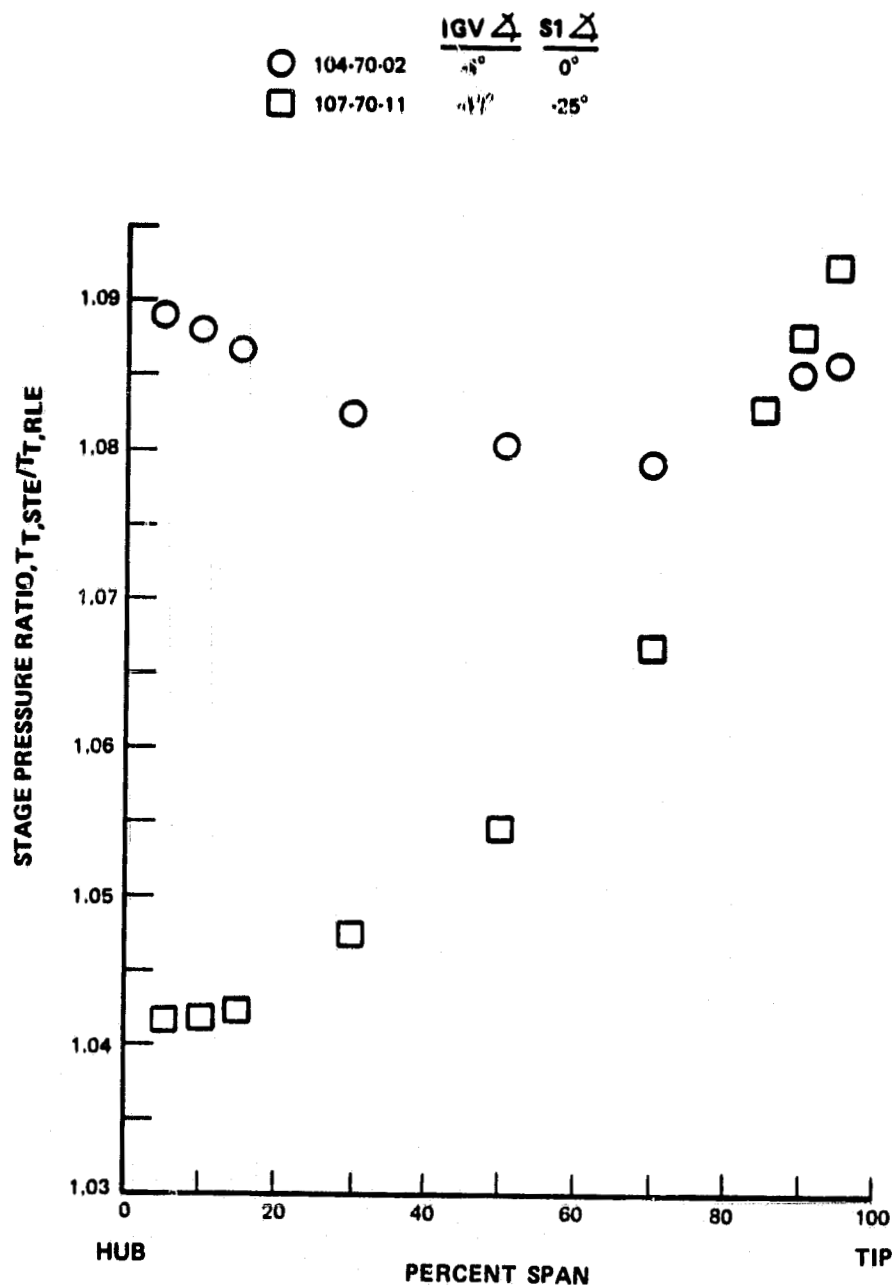


Figure 53 Stage Temperature Ratio as a Function of Percent Span at 70 Percent Speed - Design and Closed Inlet Guide Vane and Stator Stagger Angles

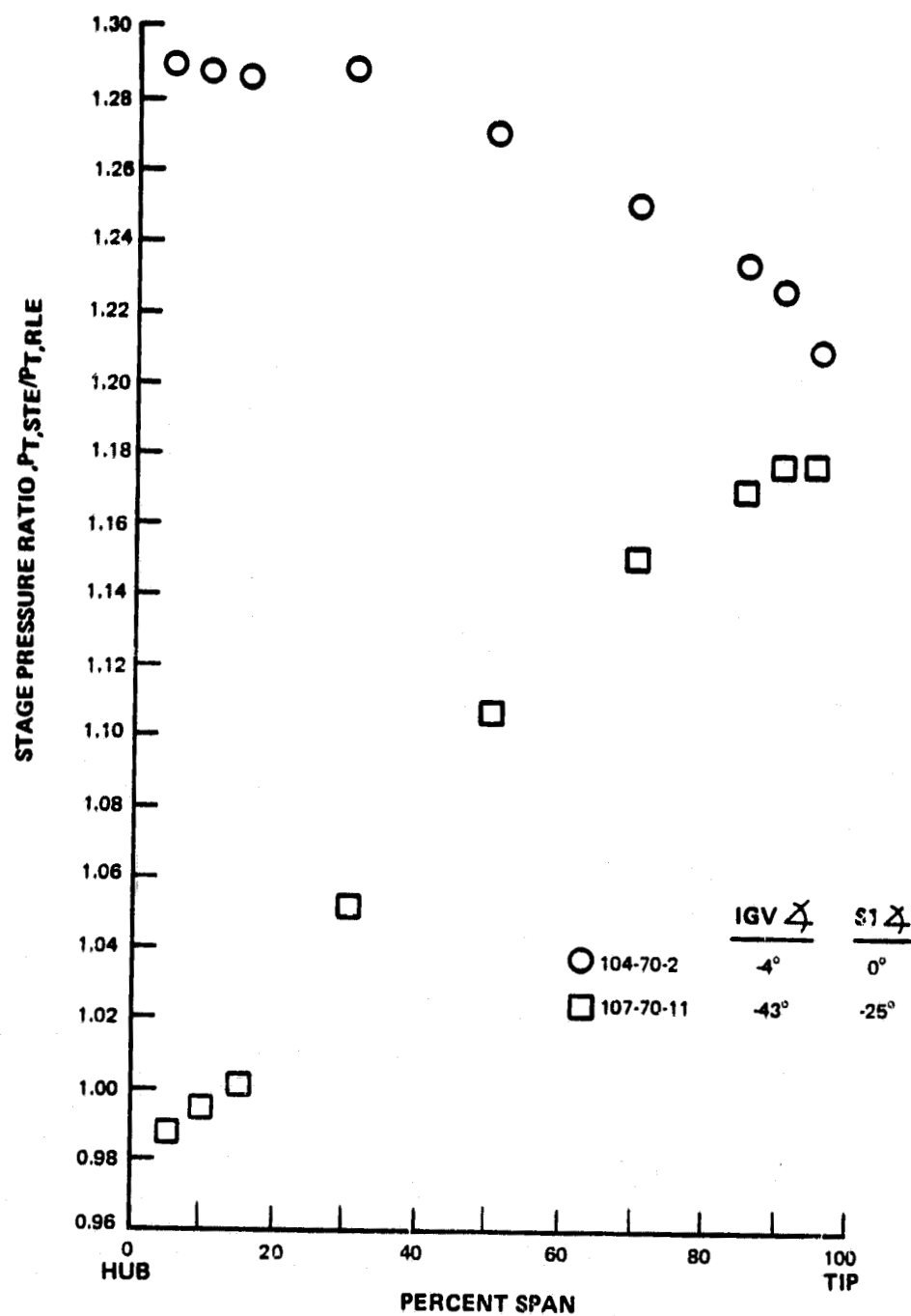


Figure 54 Stage Pressure Ratio as a Function of Percent Span at 70 Percent Speed - Design and Closed Inlet Guide Vane and Stator Stagger Angles



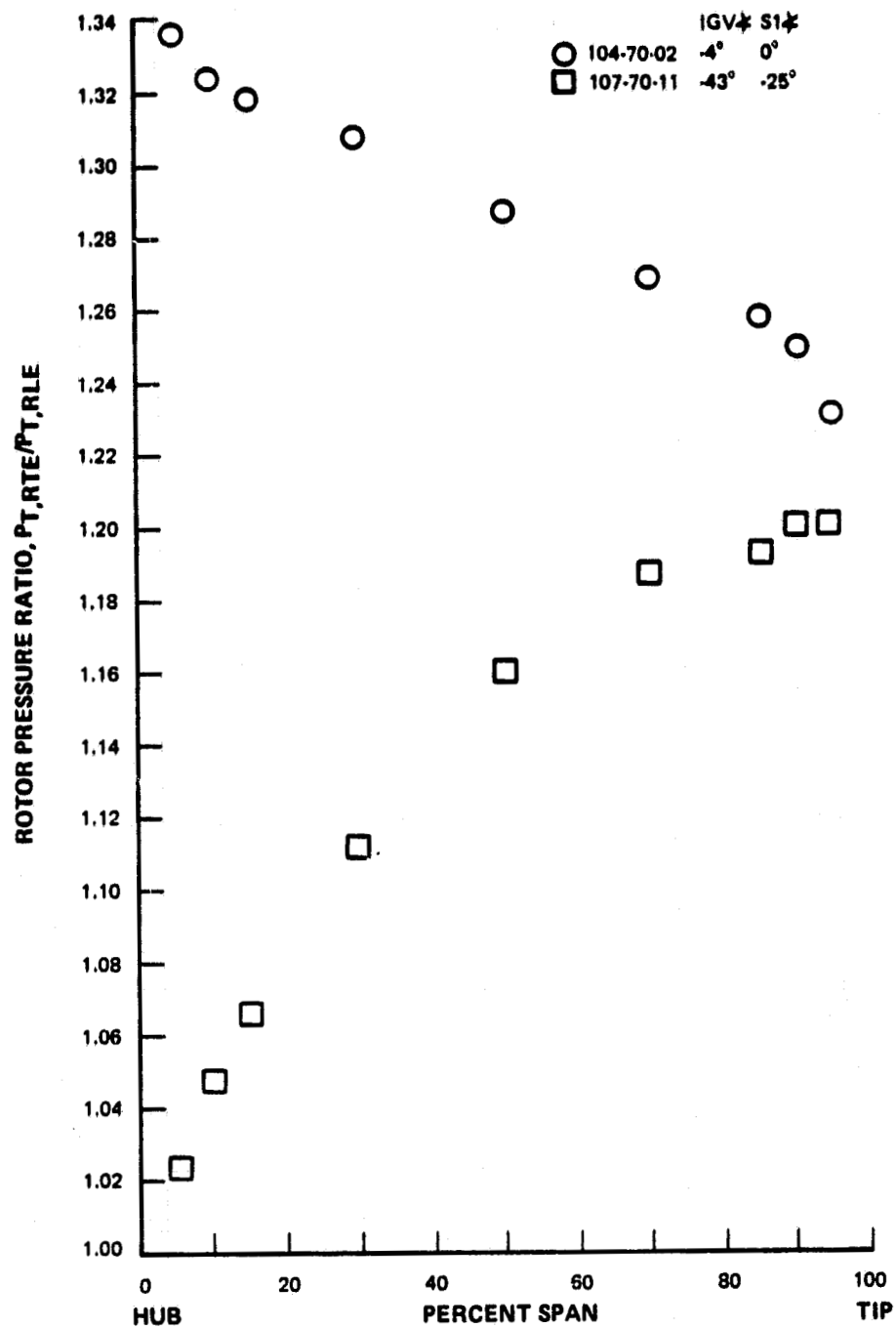


Figure 55 Rotor Pressure Ratio as a Function of Percent Span at 70 Percent Speed - Design and Closed Inlet Guide Vane and Stator Stagger Angles

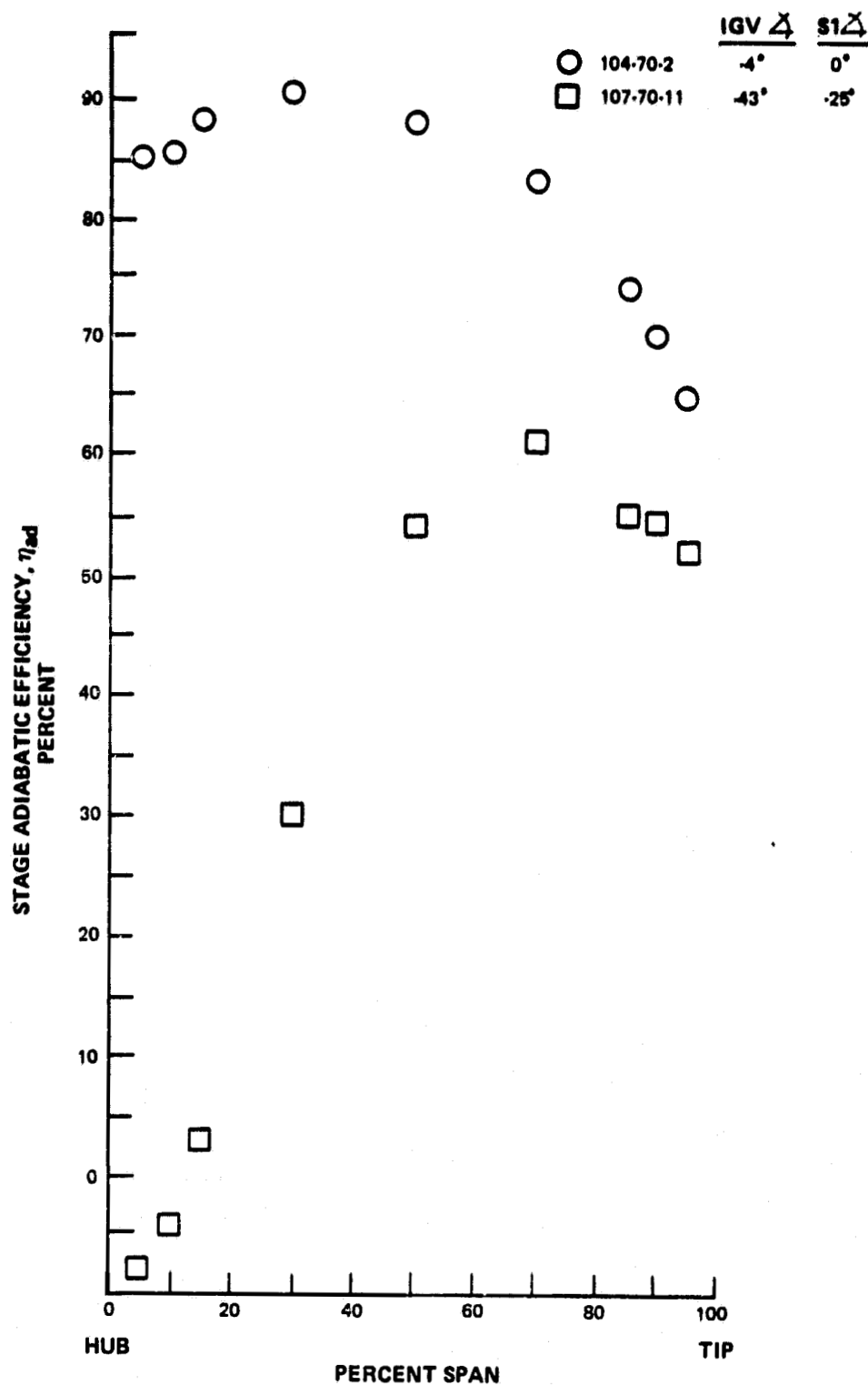


Figure 56 Stage Adiabatic Efficiency as a Function of Percent Span at 70 Percent Speed - Design and Closed Inlet Guide Vane and Stator Stagger Angles

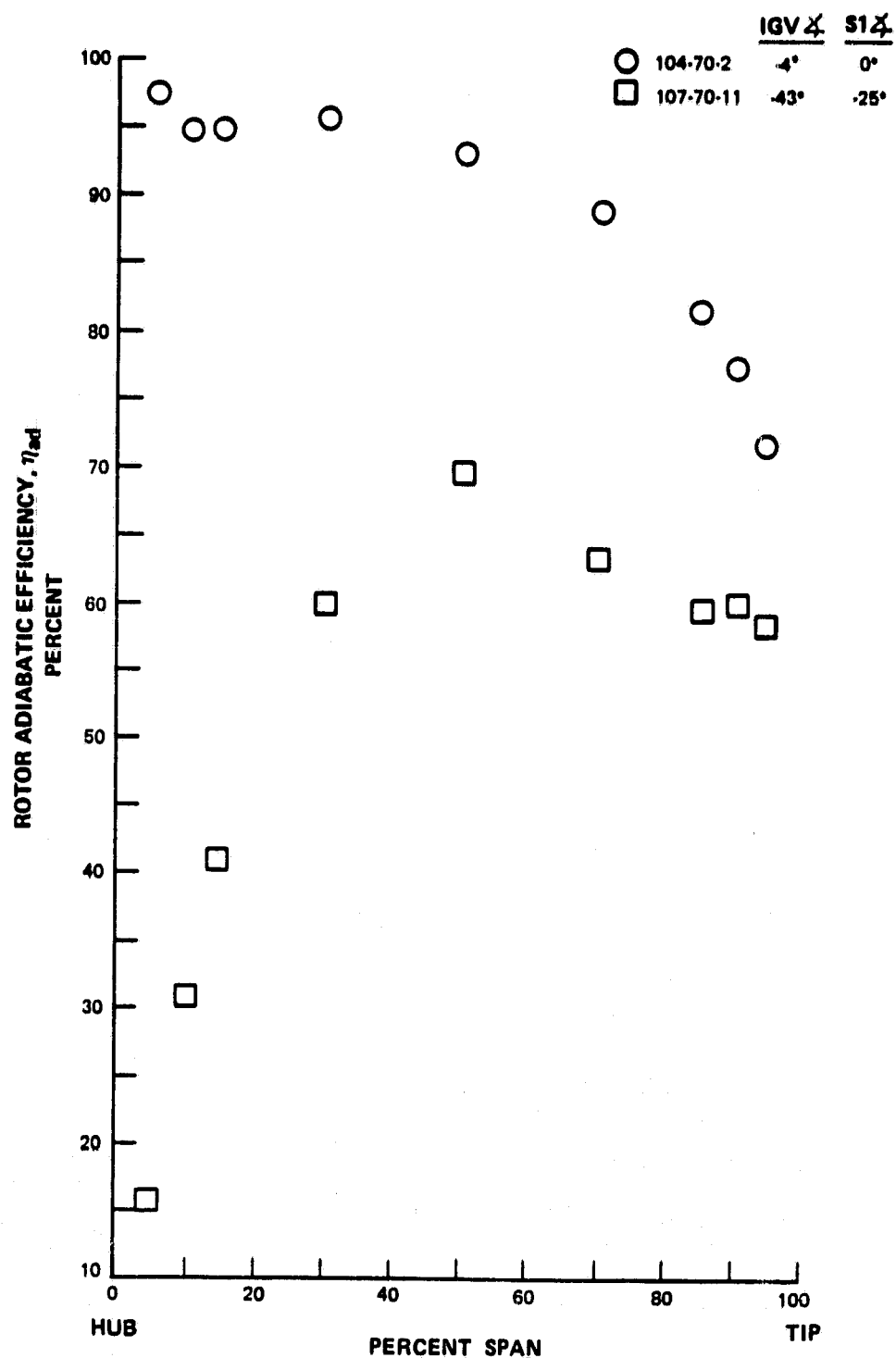


Figure 57 Rotor Adiabatic Efficiency as a Function of Percent Span at 70 Percent Speed - Design and Closed Inlet Guide Vane and Stator Stagger Angles

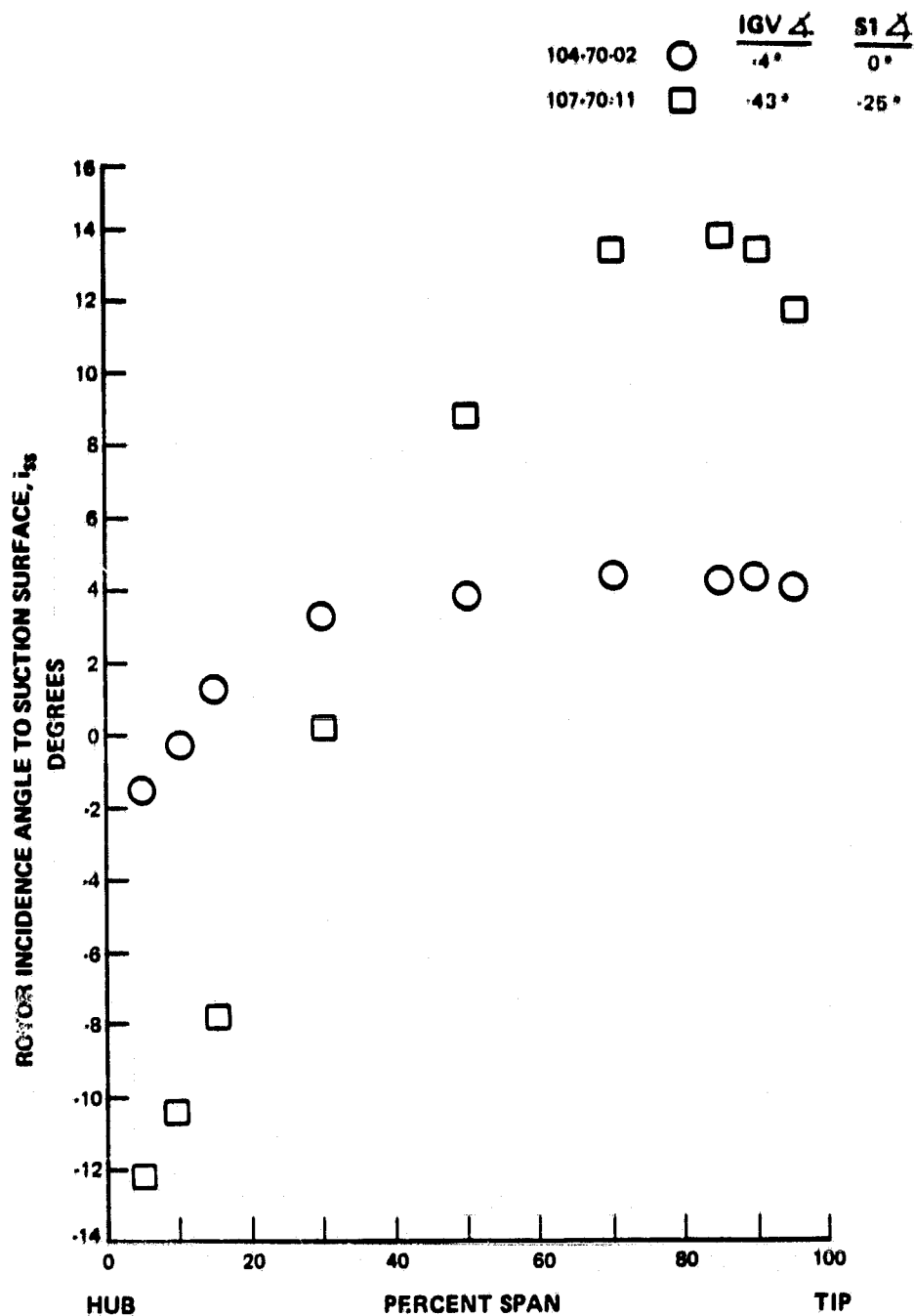


Figure 58 Rotor Incidence Angle to Suction Surface as a Function of Percent Span at 70 Percent Speed - Design and Closed Inlet Guide Vane and Stator Stagger Angles

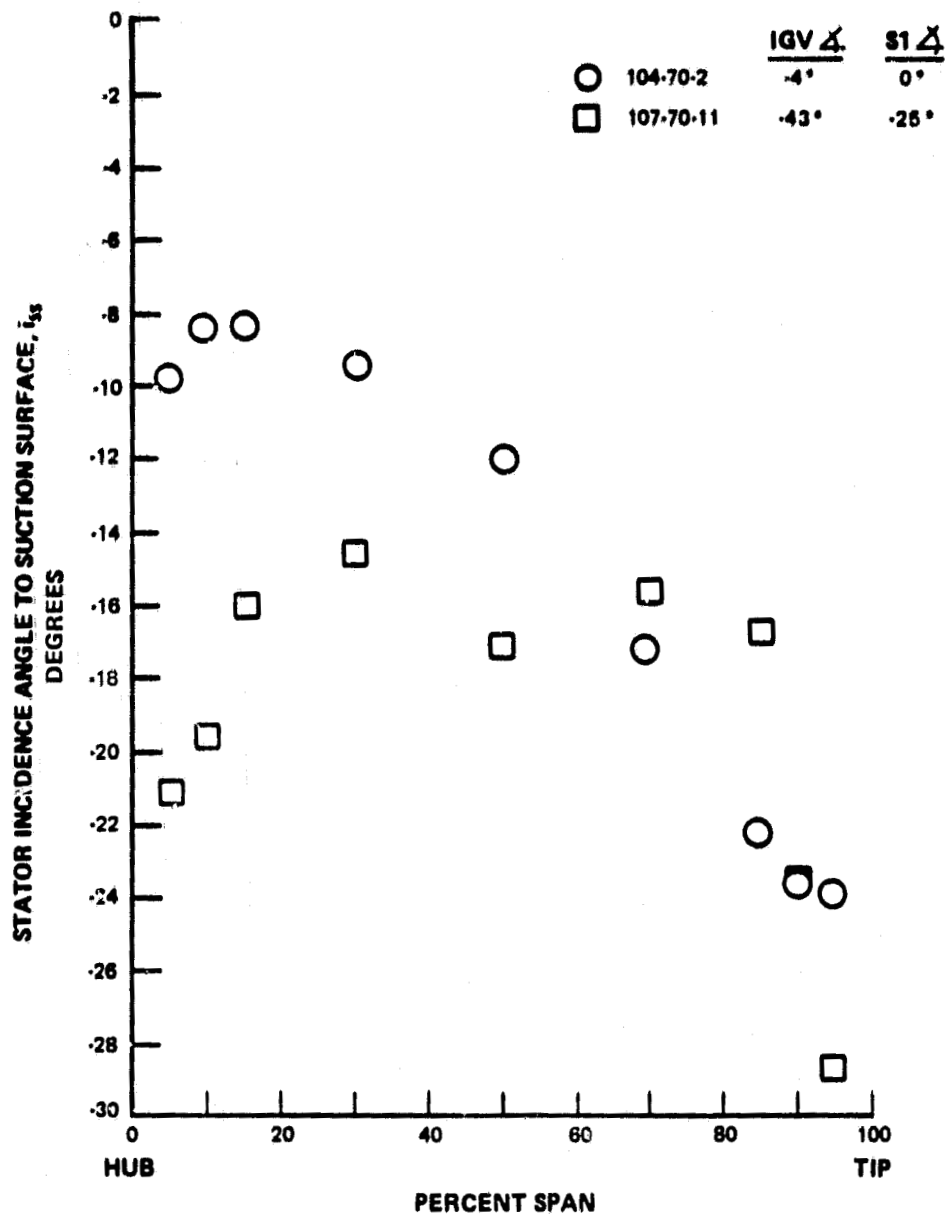


Figure 5) Stator Incidence Angle to Suction Surface as a Function of Percent Span at 70 Percent Speed - Design and Closed Inlet Guide Vane and Stator Stagger Angles

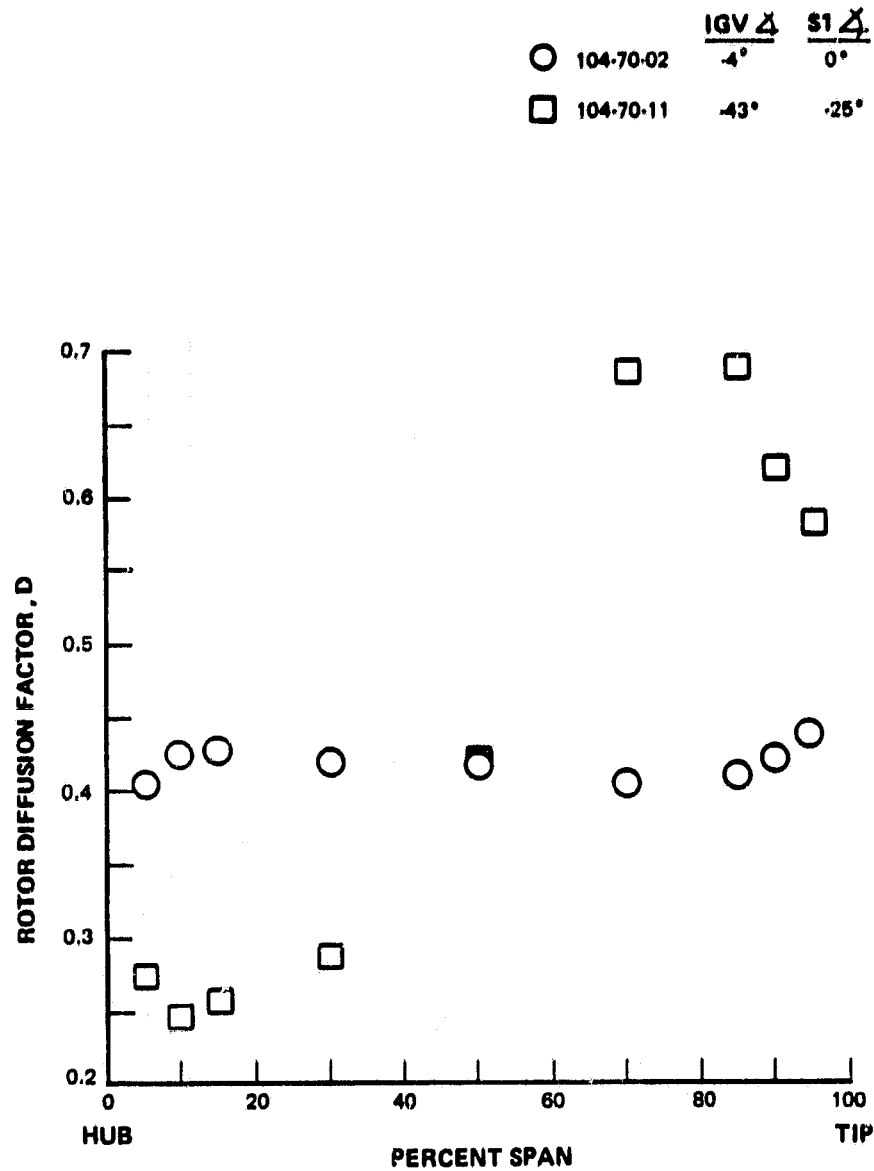


Figure 60 Rotor Diffusion Factor as a Function of Percent Span at 70 Percent Speed - Design and Closed Inlet Guide Vane and Stator Stagger Angles

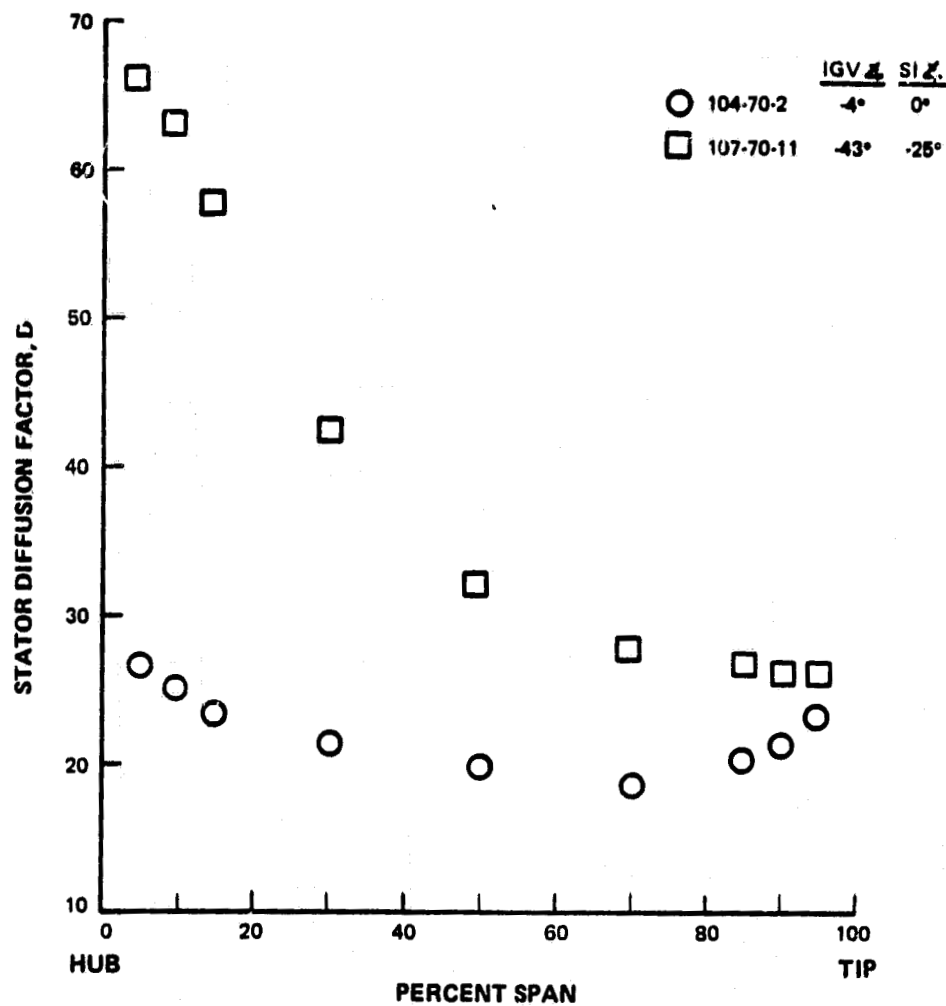


Figure 61 Stator Diffusion Factor as a Function of Percent Span at 70 Percent Speed - Design and Closed Inlet Guide Vane and Stator Stagger Angles

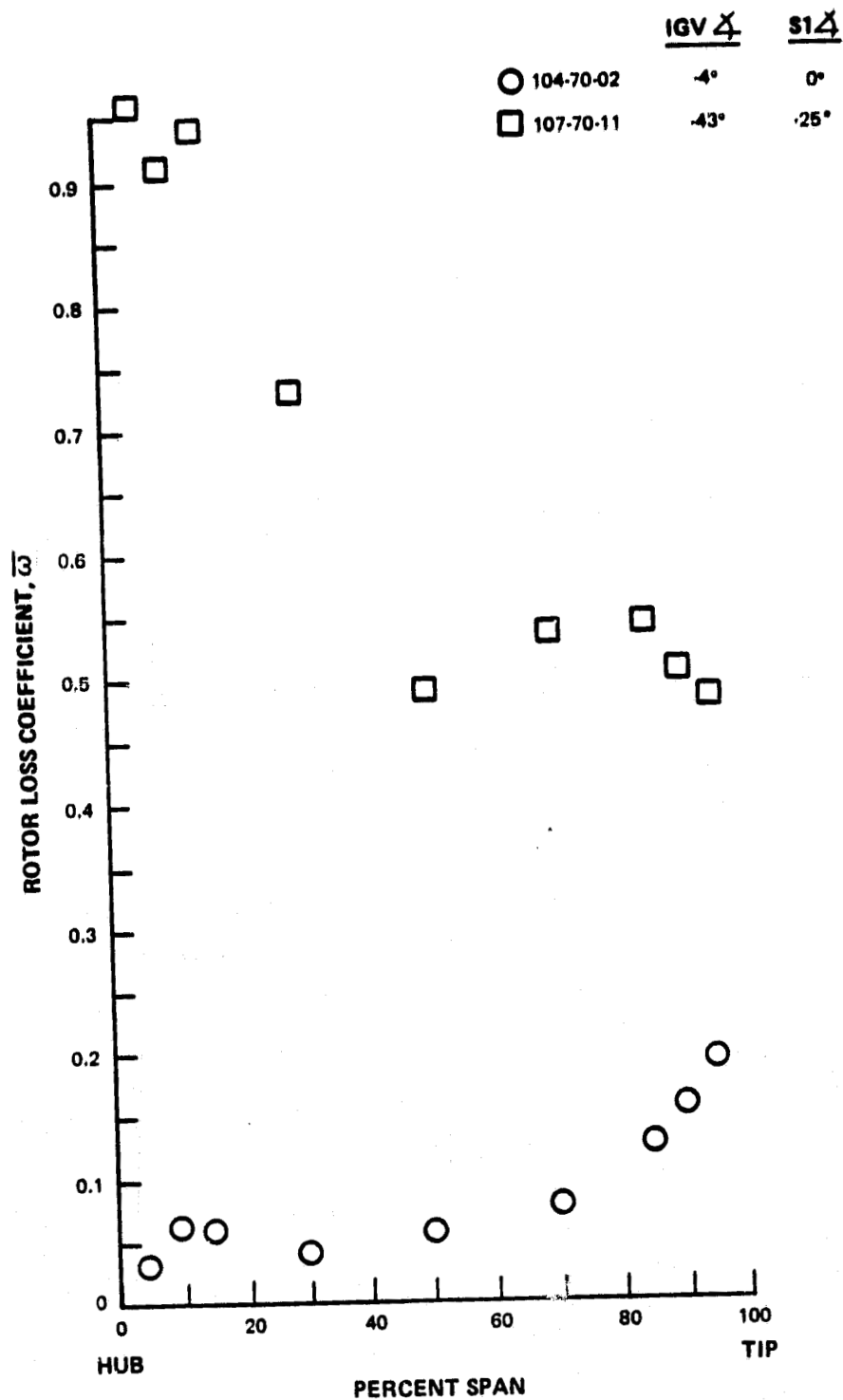


Figure 62 Rotor Loss Coefficient as a Function of Percent Span at 70 Percent Speed - Design and Closed Inlet Guide Vane and Stator Stagger Angles



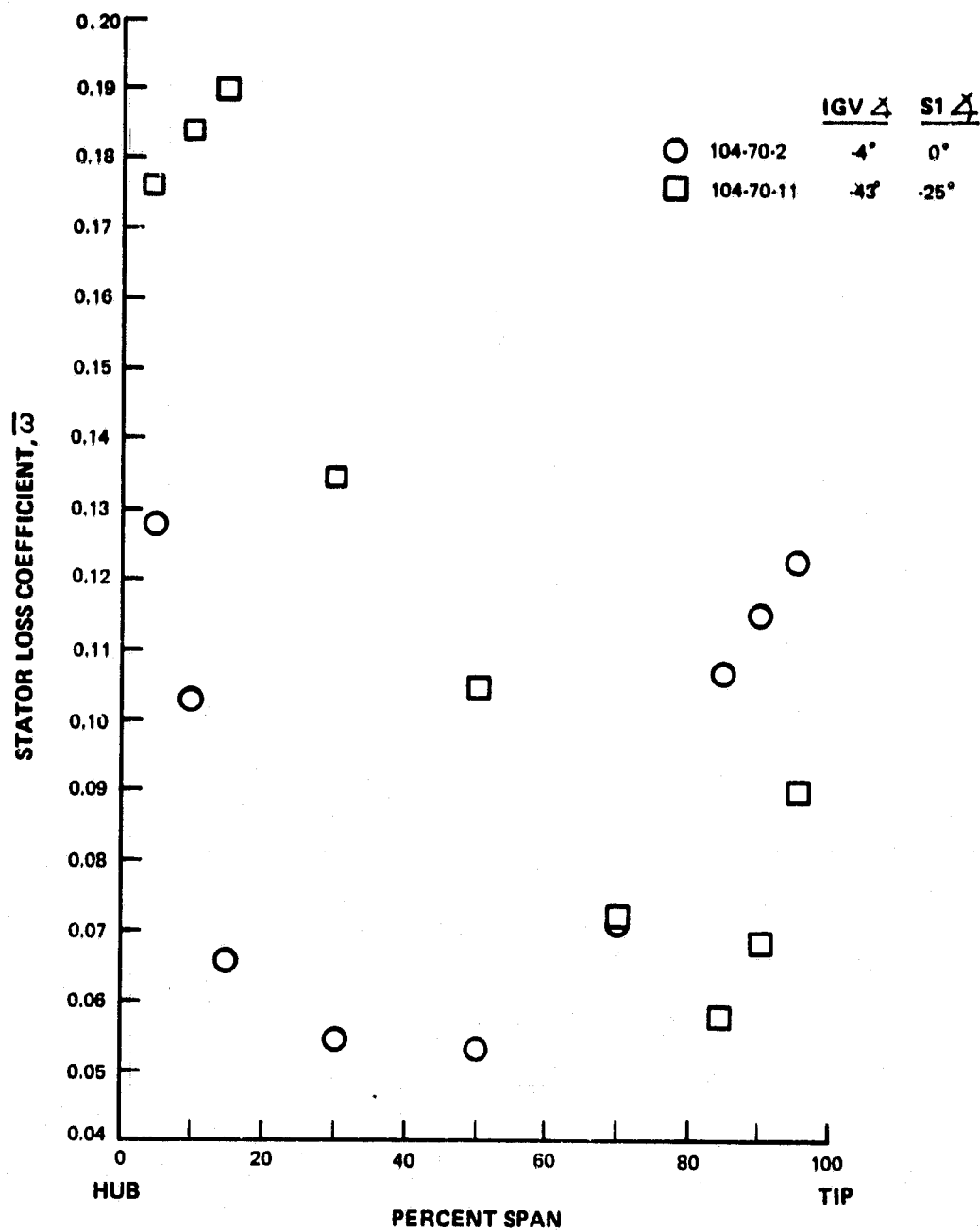


Figure 63 Stator Loss Coefficient as a Function of Percent Span at 70 Percent Speed - Design and Closed Inlet Guide Vane and Stator Stagger Angles

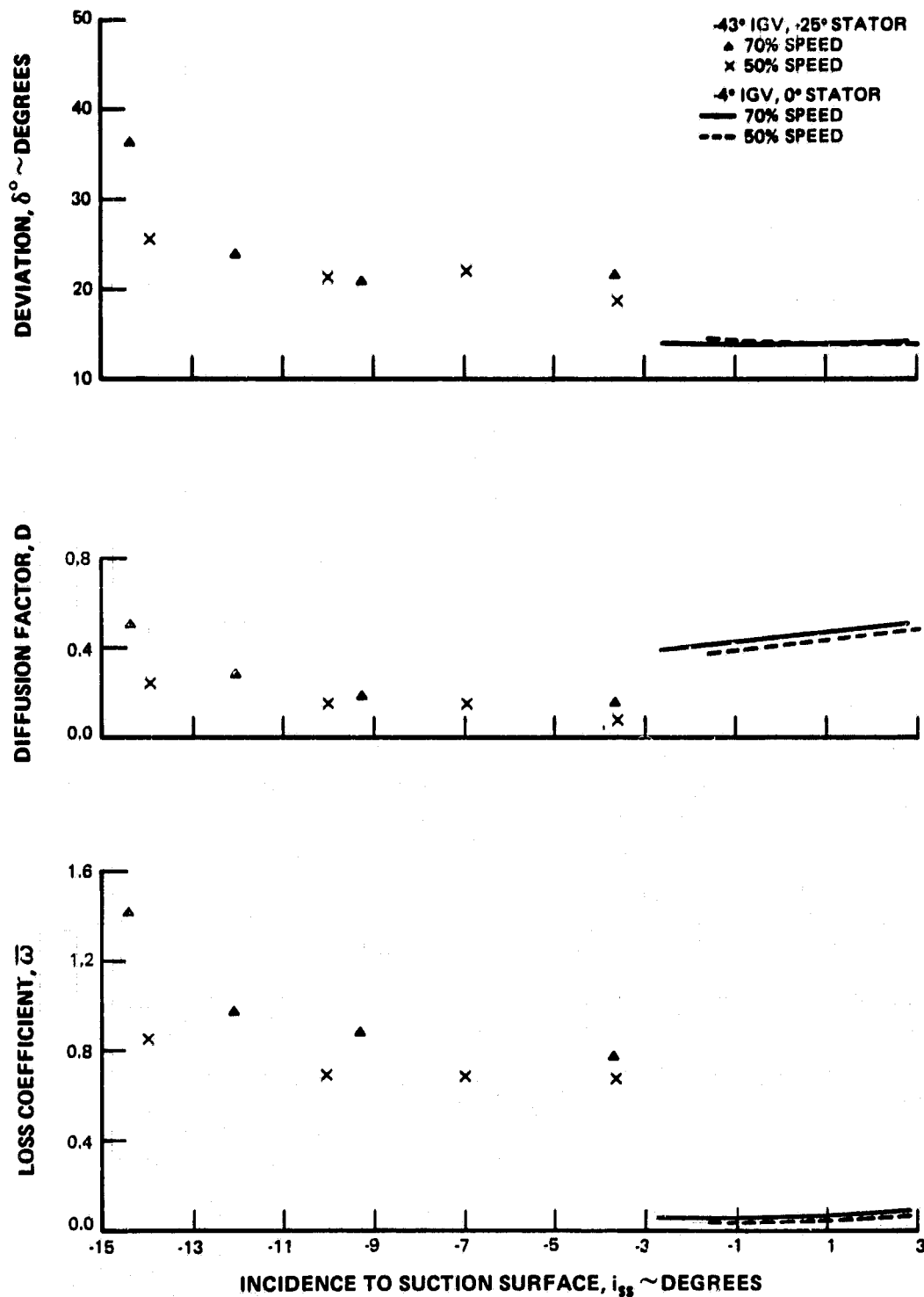


Figure 64 Rotor Blade Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 5 Percent Span - Inlet Guide Vane and Stator at Design and Closed Stagger Angles

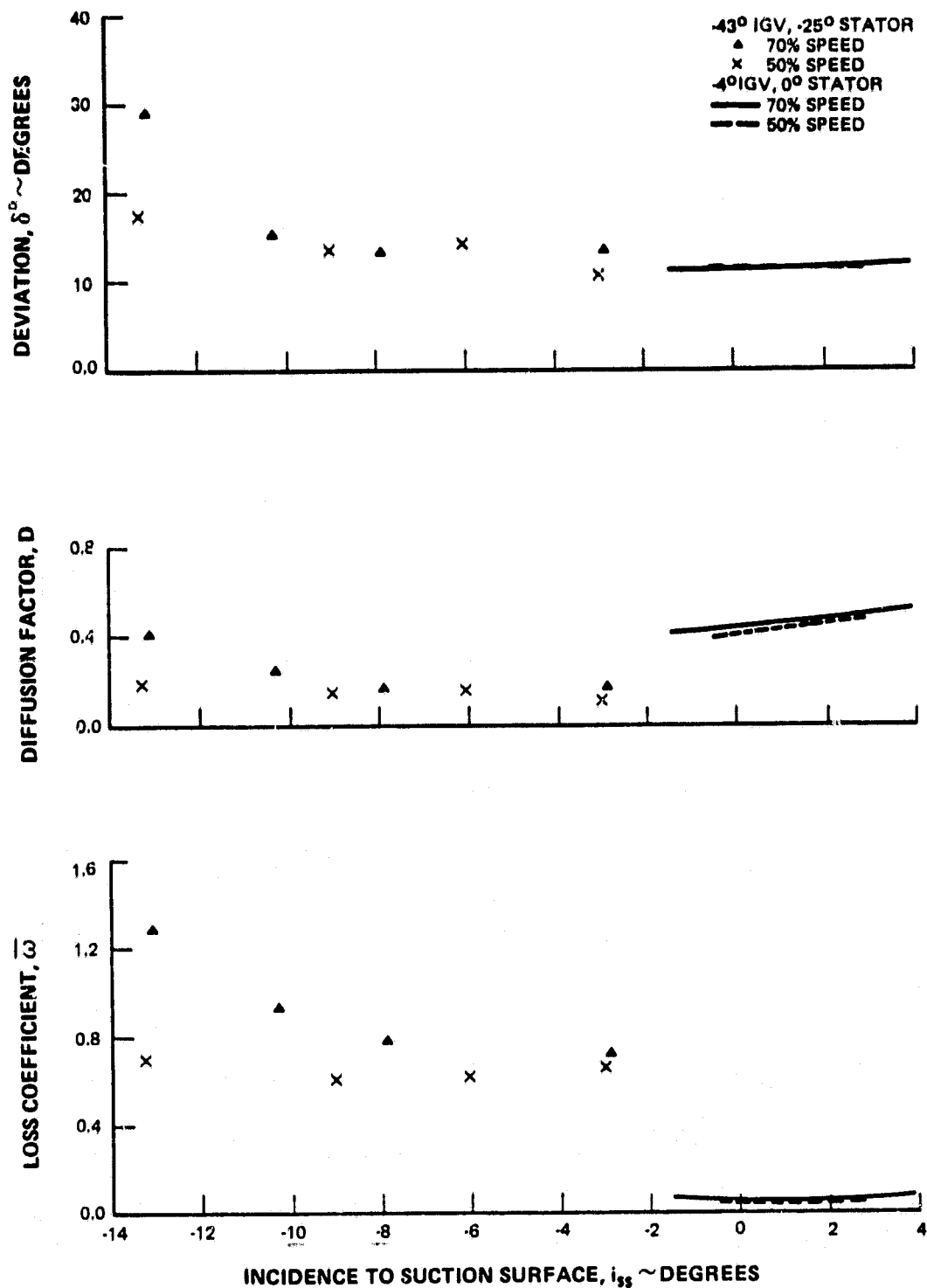


Figure 65 Rotor Blade Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 10 Percent Span - Inlet Guide Vane and Stator at Design and Closed Stagger Angles

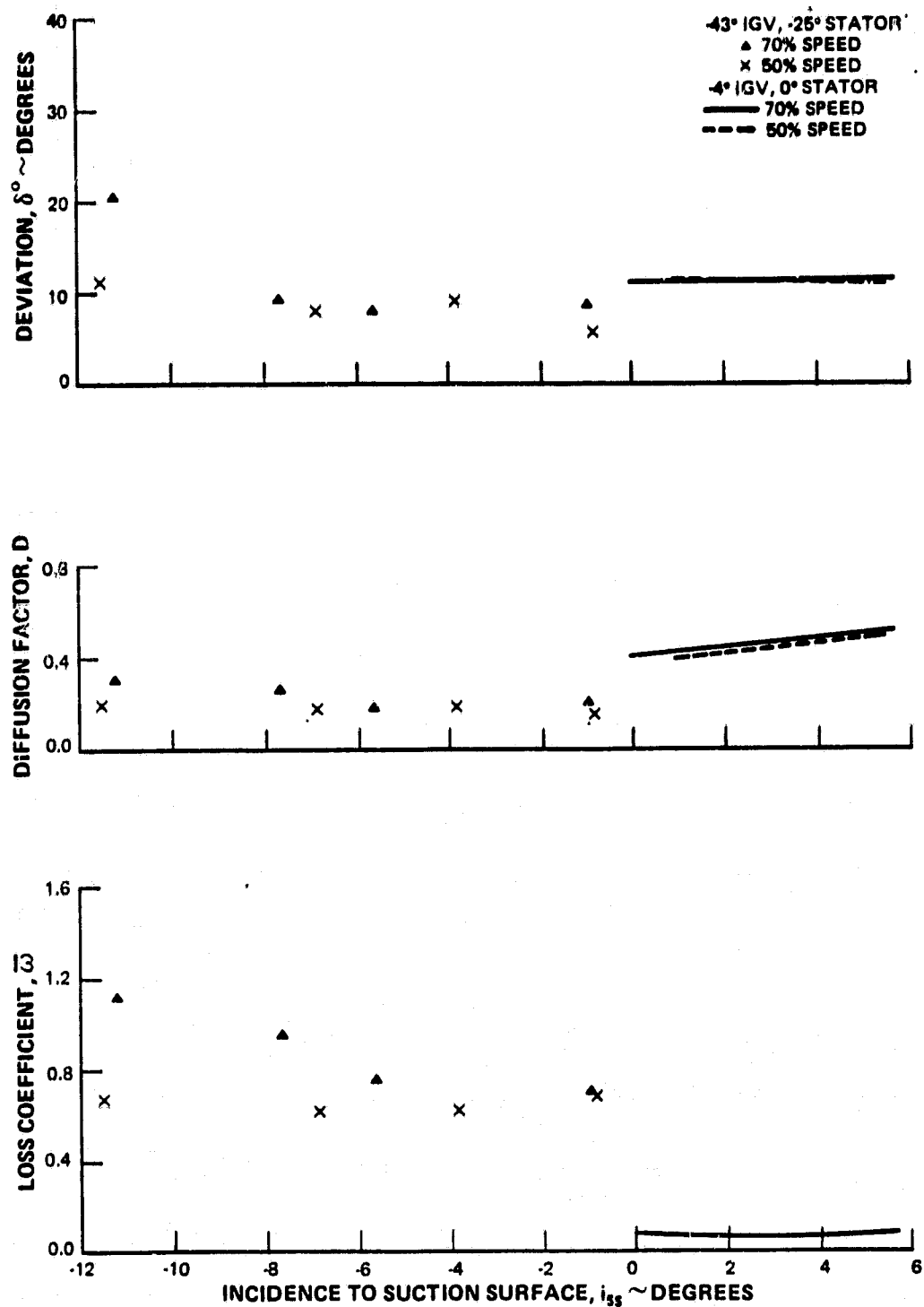


Figure 66 Rotor Blade Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 15 Percent Span - Inlet Guide Vane and Stator at Design and Closed Stagger Angles

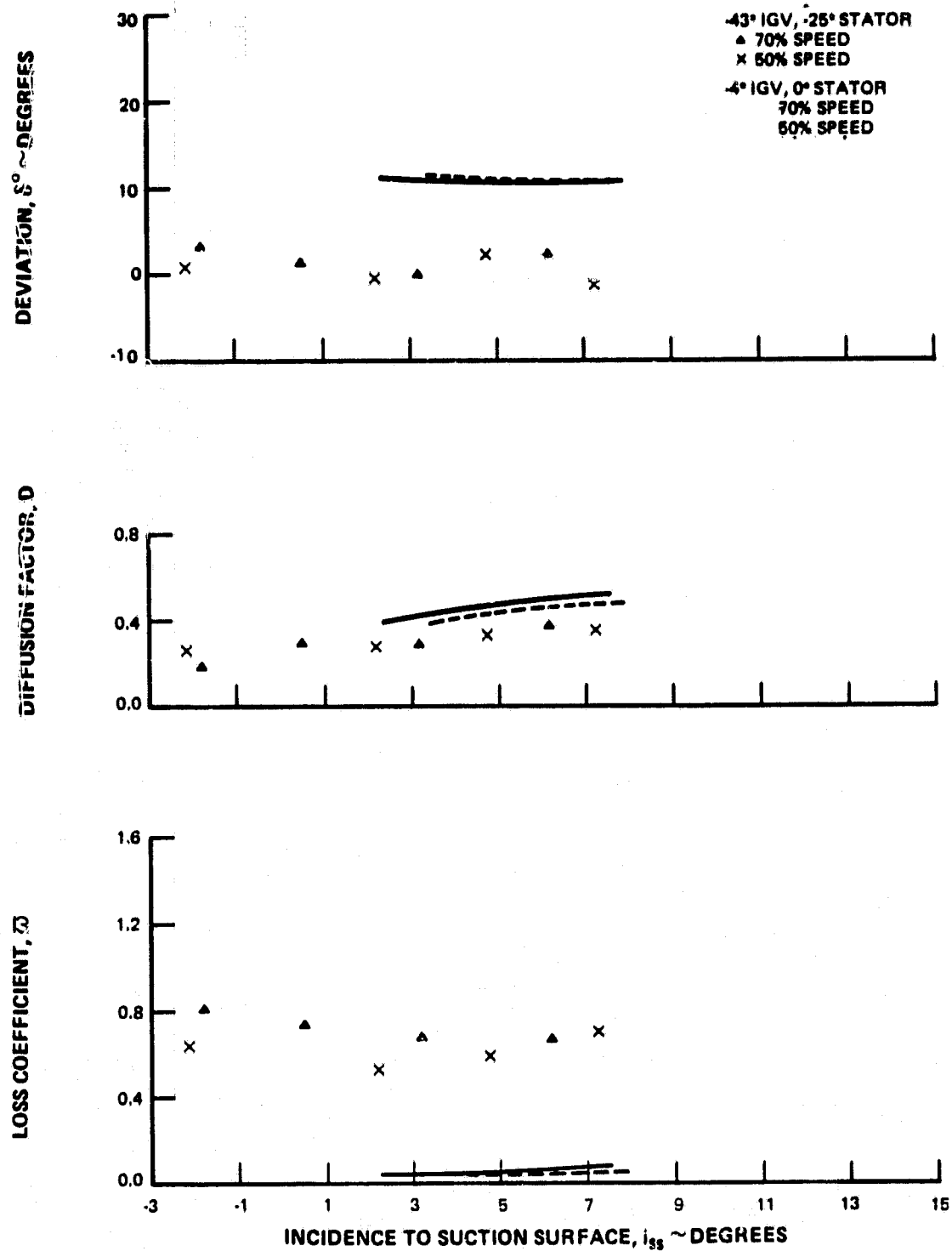


Figure 67 Rotor Blade Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 30 Percent Span - Inlet Guide Vane and Stator at Design and Closed Stagger Angles

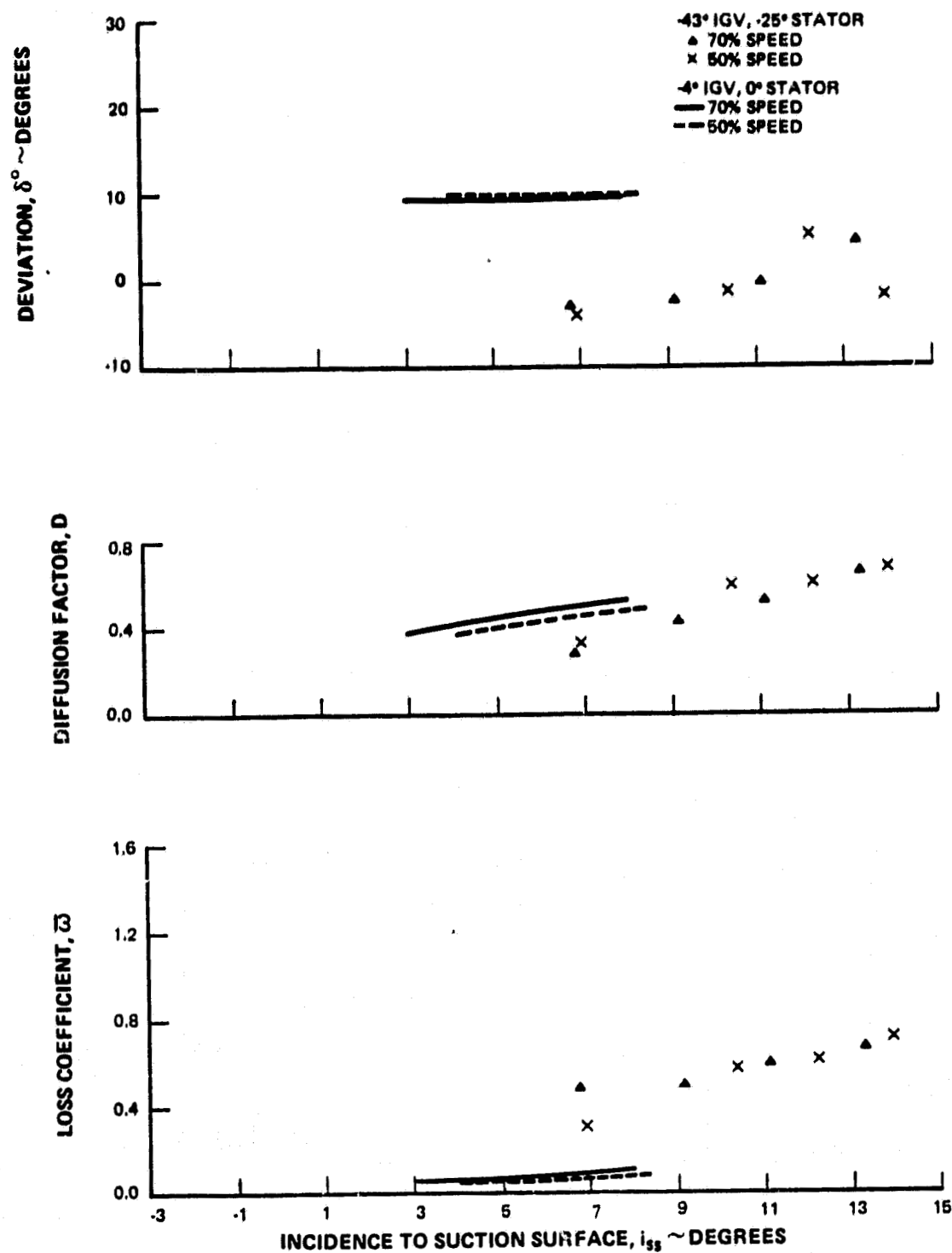


Figure 68 Rotor Blade Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 50 Percent Span - Inlet Guide Vane and Stator at Design and Closed Stagger Angles

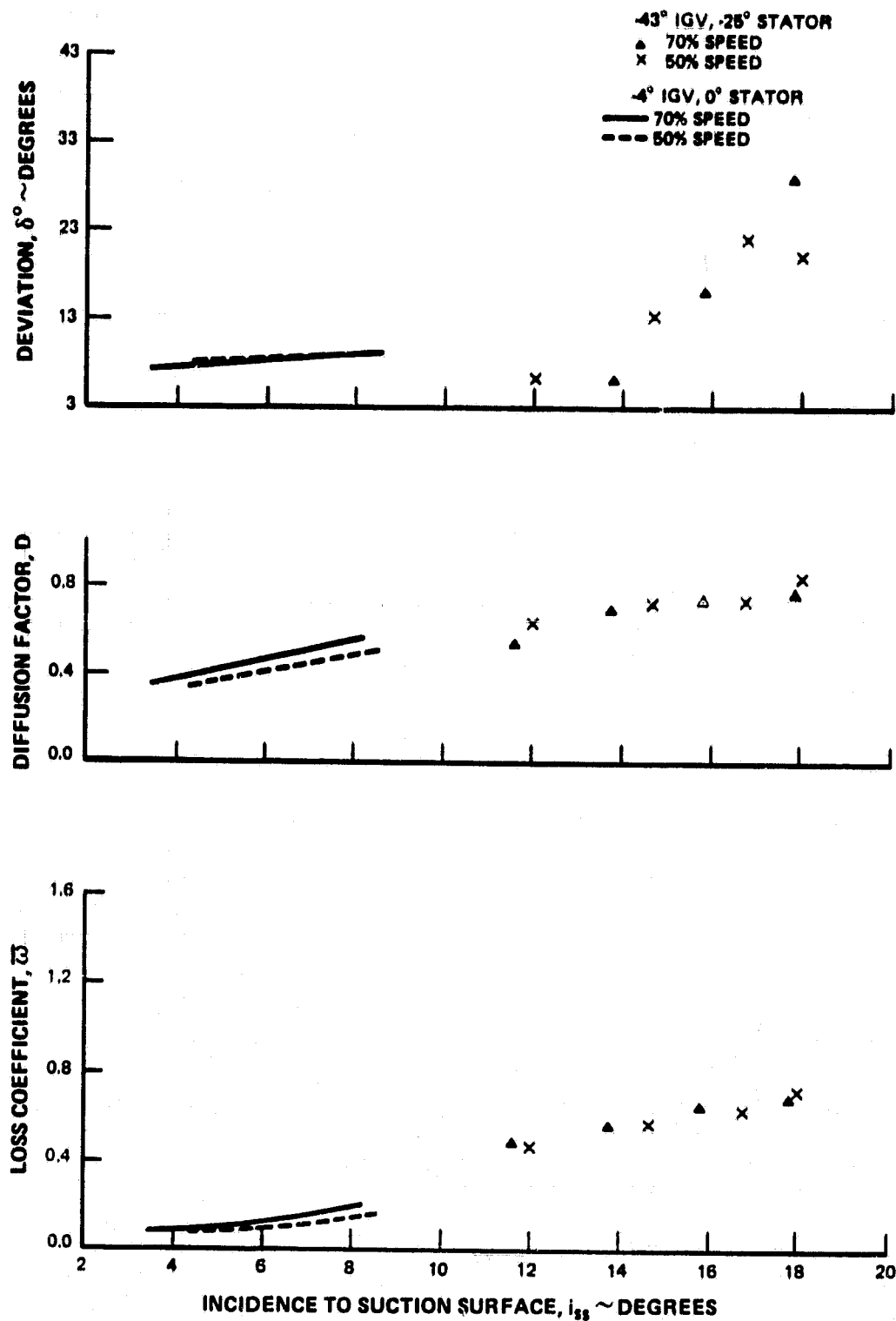


Figure 69 Rotor Blade Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 70 Percent Span - Inlet Guide Vane and Stator at Design and Closed Stagger Angles

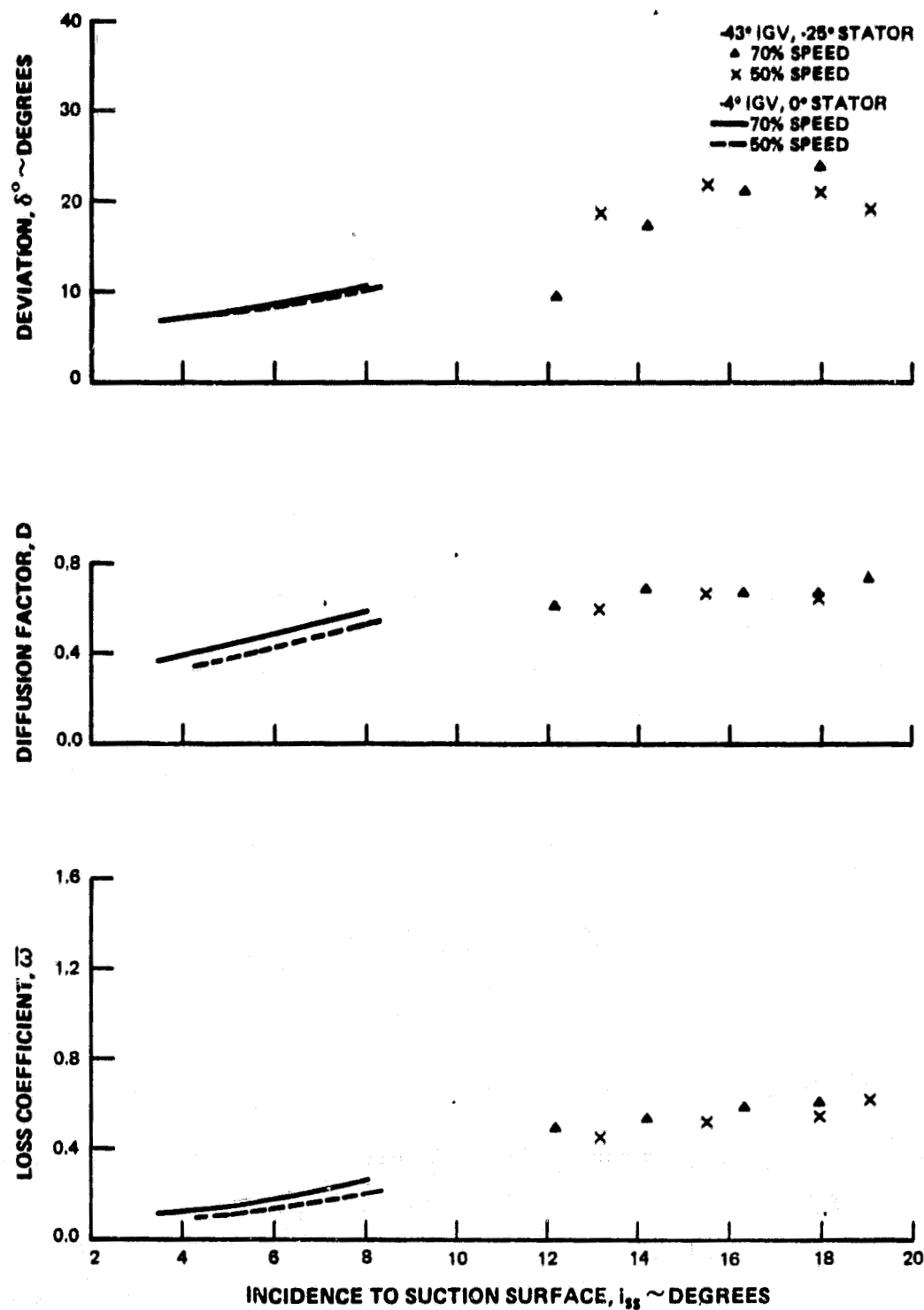


Figure 70 Rotor Blade Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 85 Percent Span - Inlet Guide Vane and Stator at Design and Closed Stagger Angles



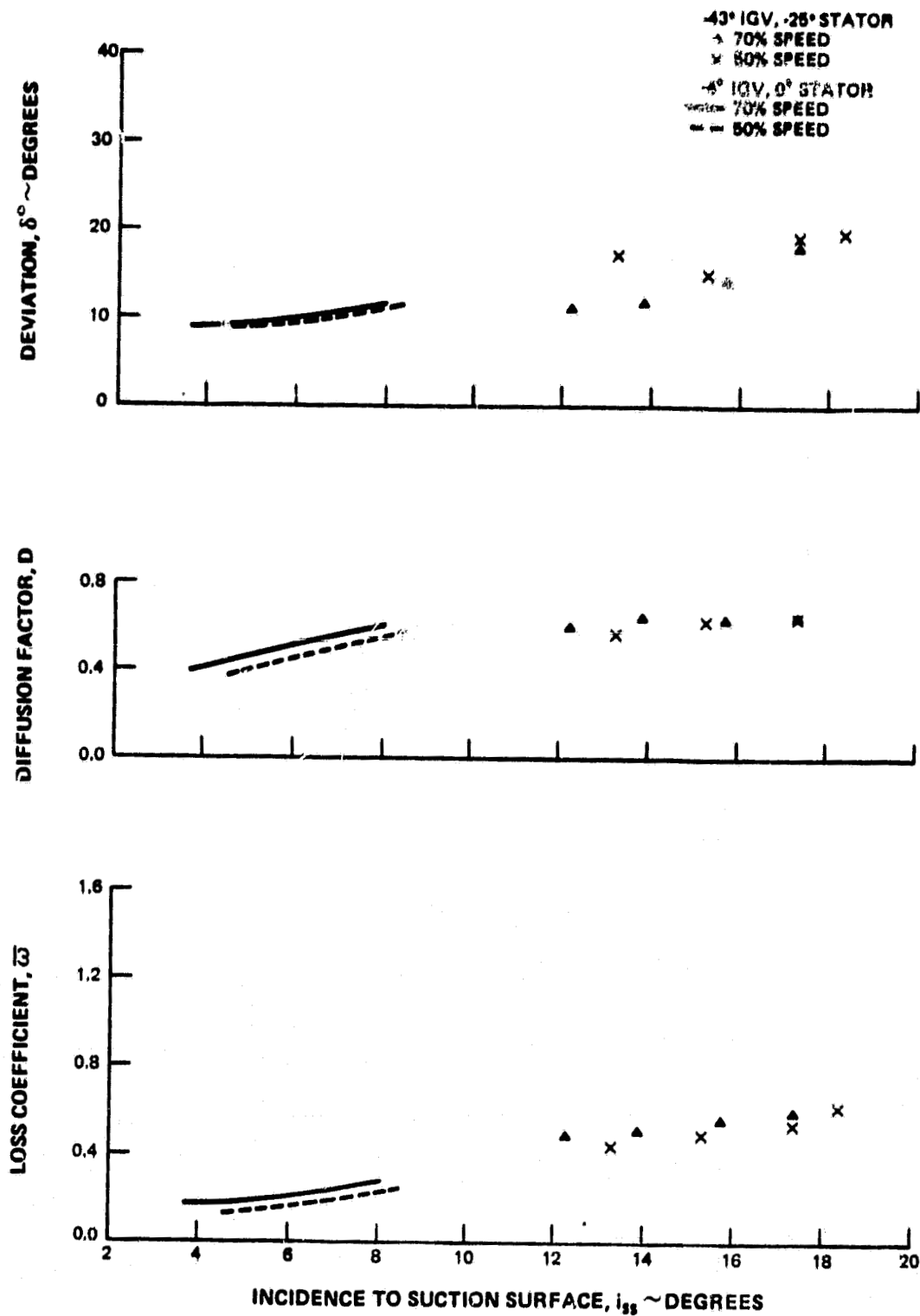


Figure 71 Rotor Blade Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 90 Percent Span - Inlet Guide Vane and Stator at Design and Closed Stagger Angles

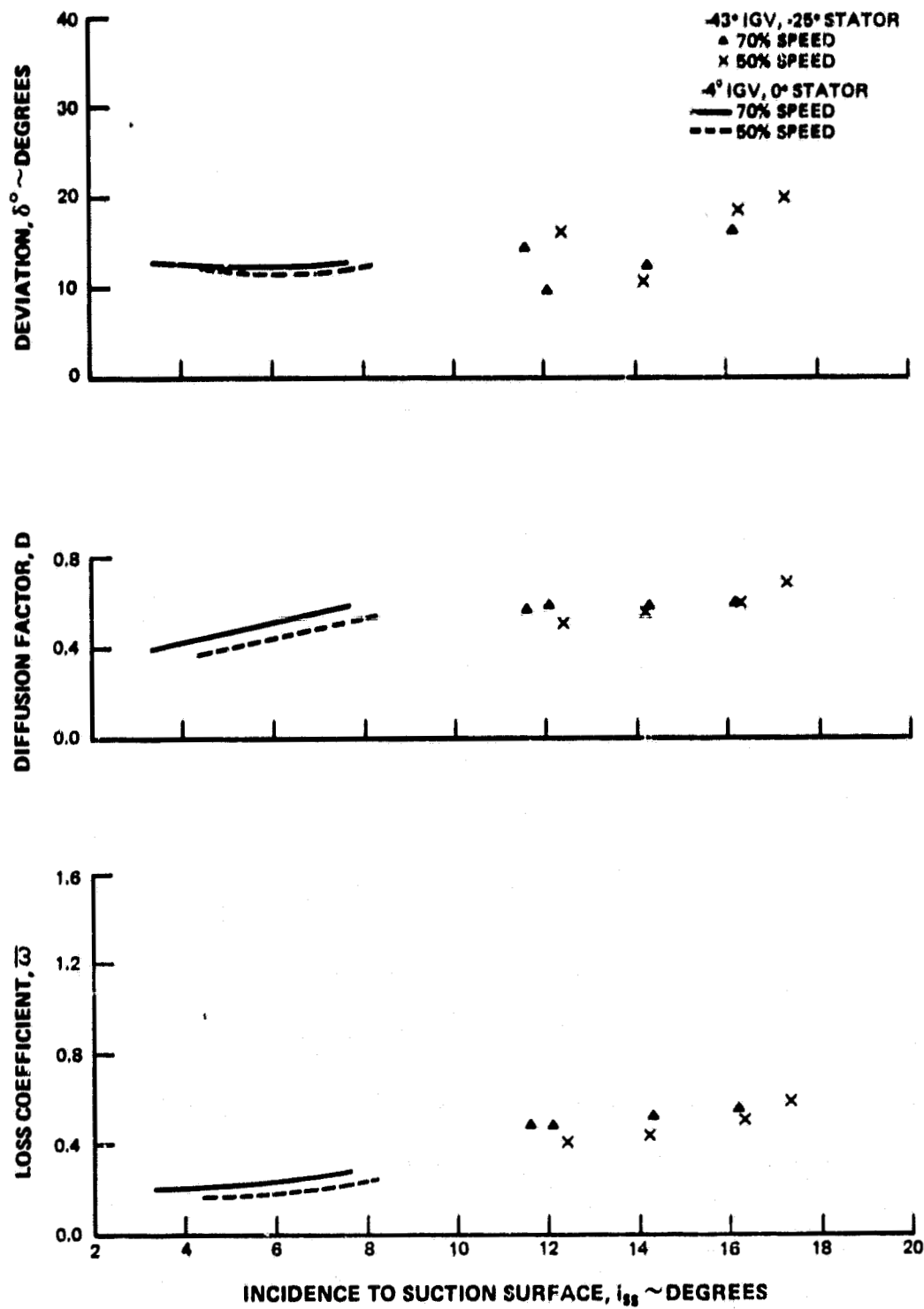


Figure 72 Rotor Blade Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 95 Percent Span - Inlet Guide Vane and Stator at Design and Closed Stagger Angles

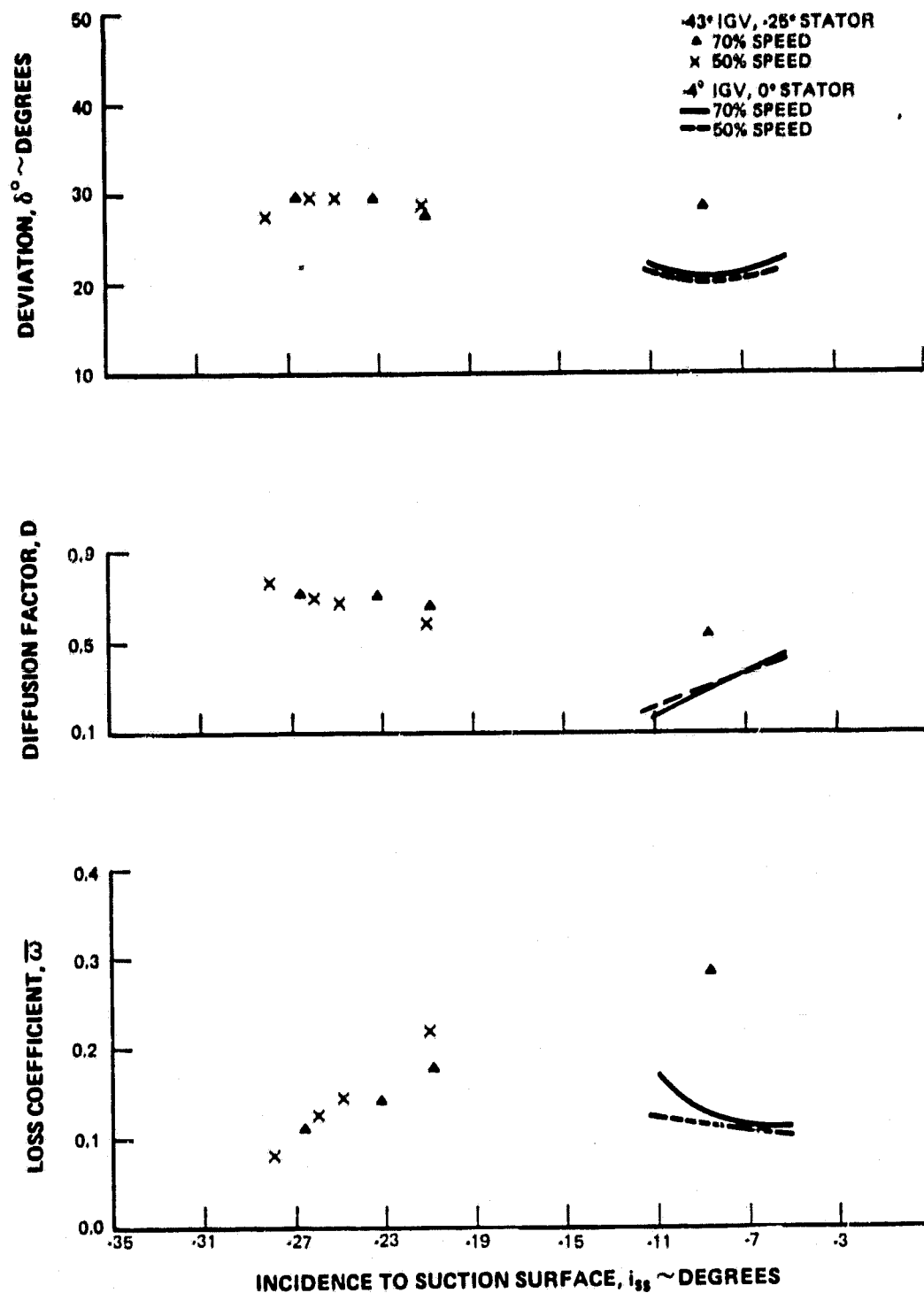


Figure 73 Stator Vane Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 5 Percent Span - Inlet Guide Vane and Stator at Design and Closed Stagger Angles

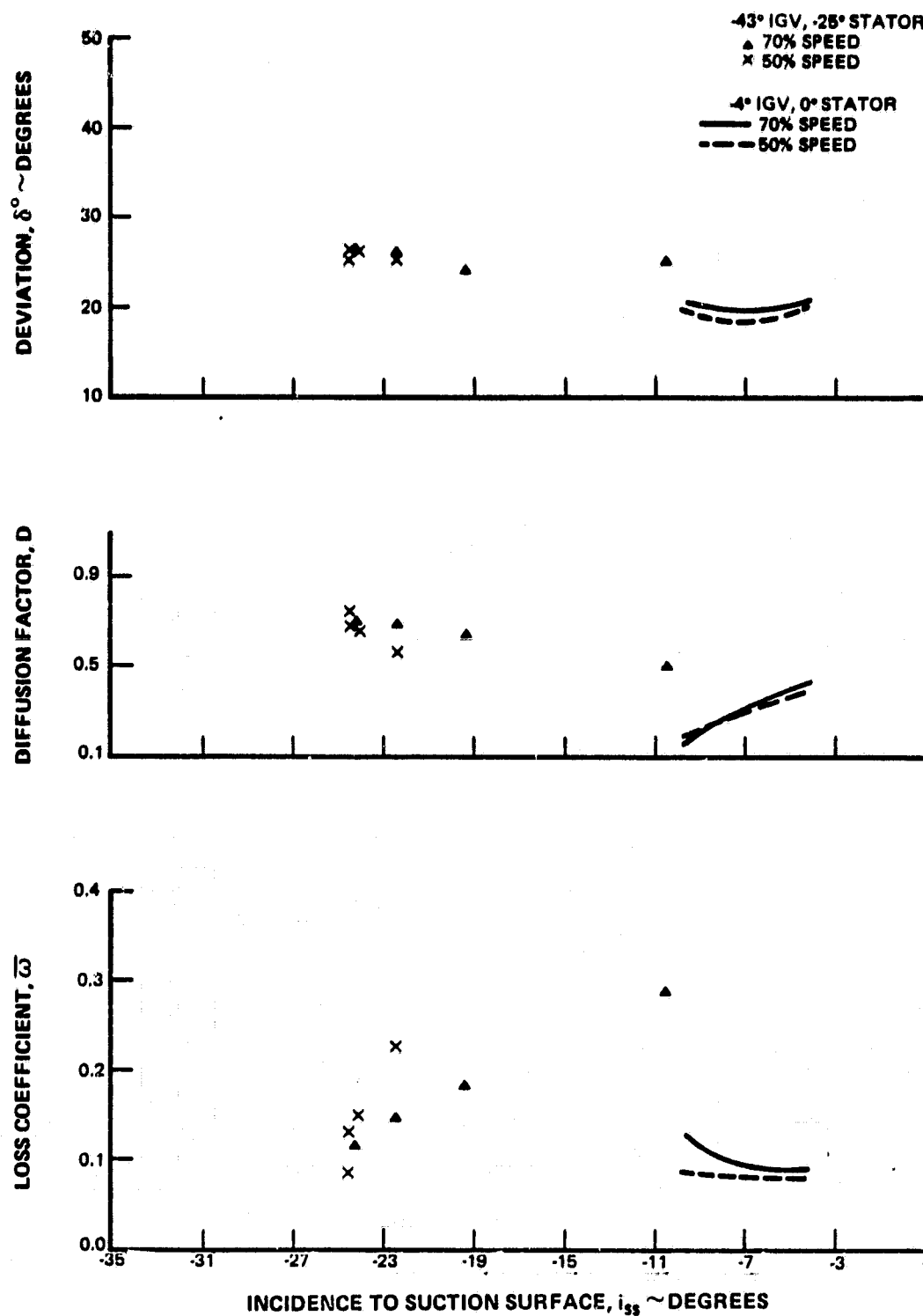


Figure 74 Stator Vane Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 10 Percent Span - Inlet Guide Vane and Stator at Design and Closed Stagger Angles

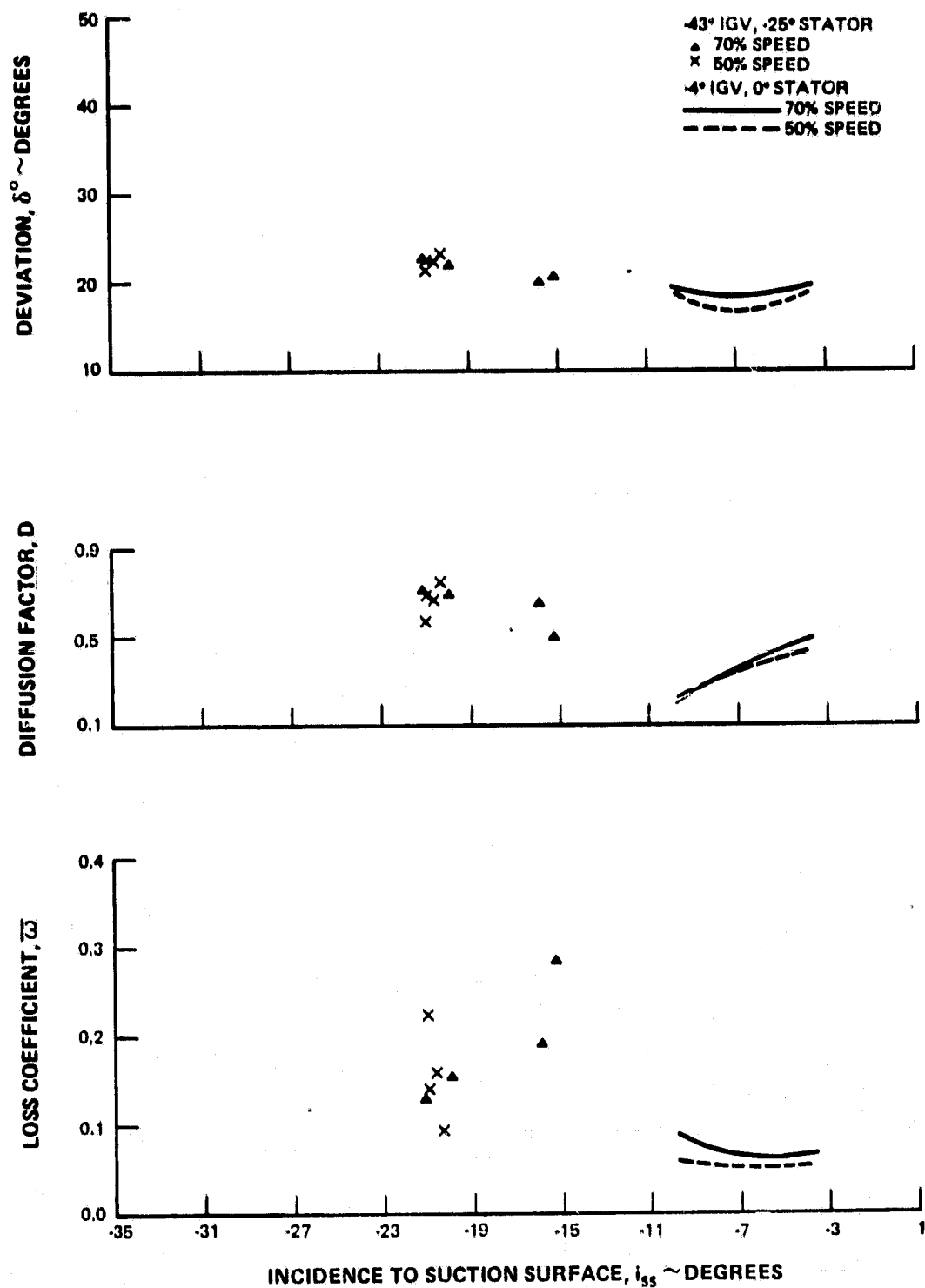


Figure 75 Stator Vane Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 15 Percent Span - Inlet Guide Vane and Stator at Design and Closed Stagger Angles

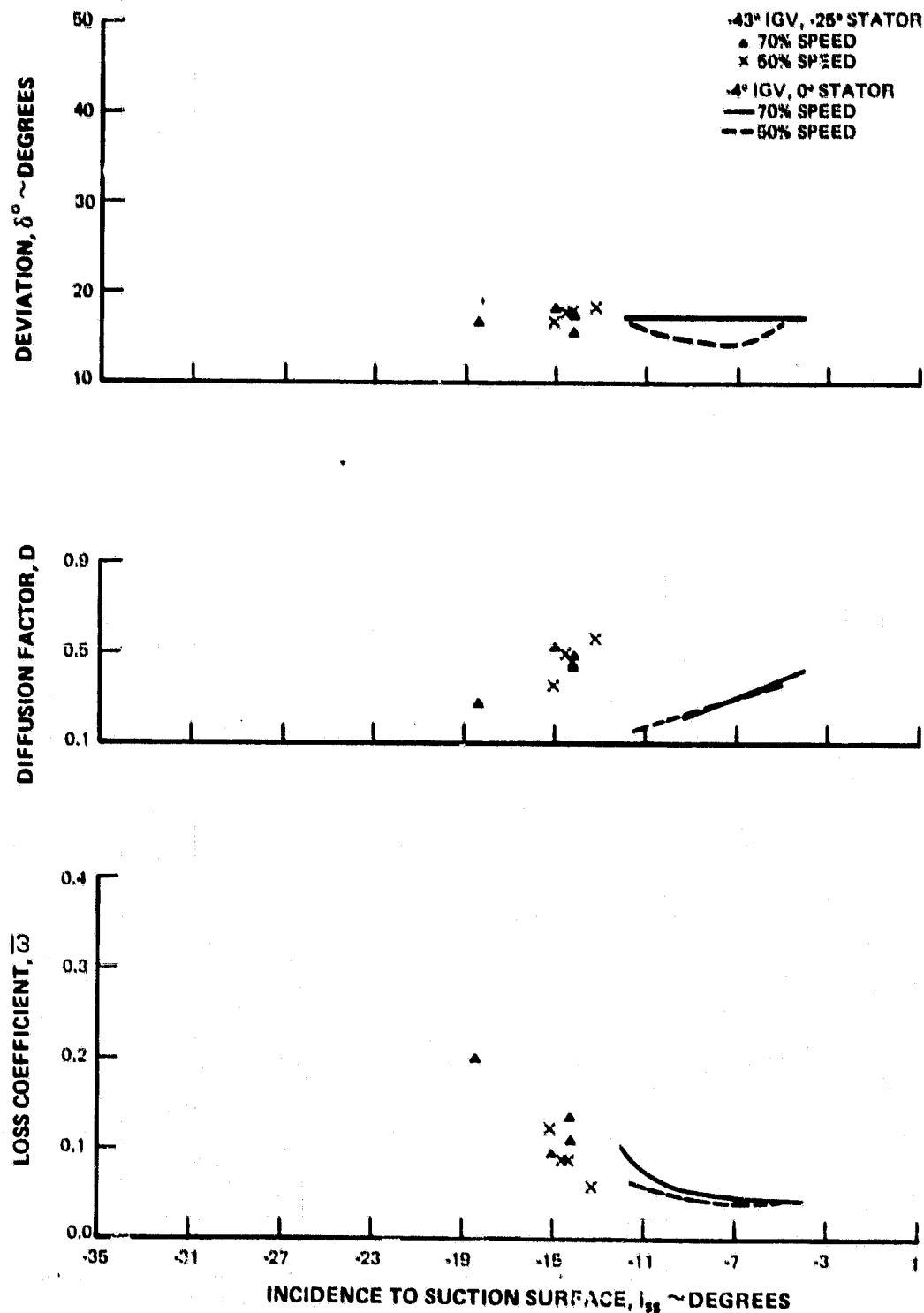


Figure 76 Stator Vane Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 30 Percent Span - Inlet Guide Vane and Stator at Design and Closed Stagger Angles

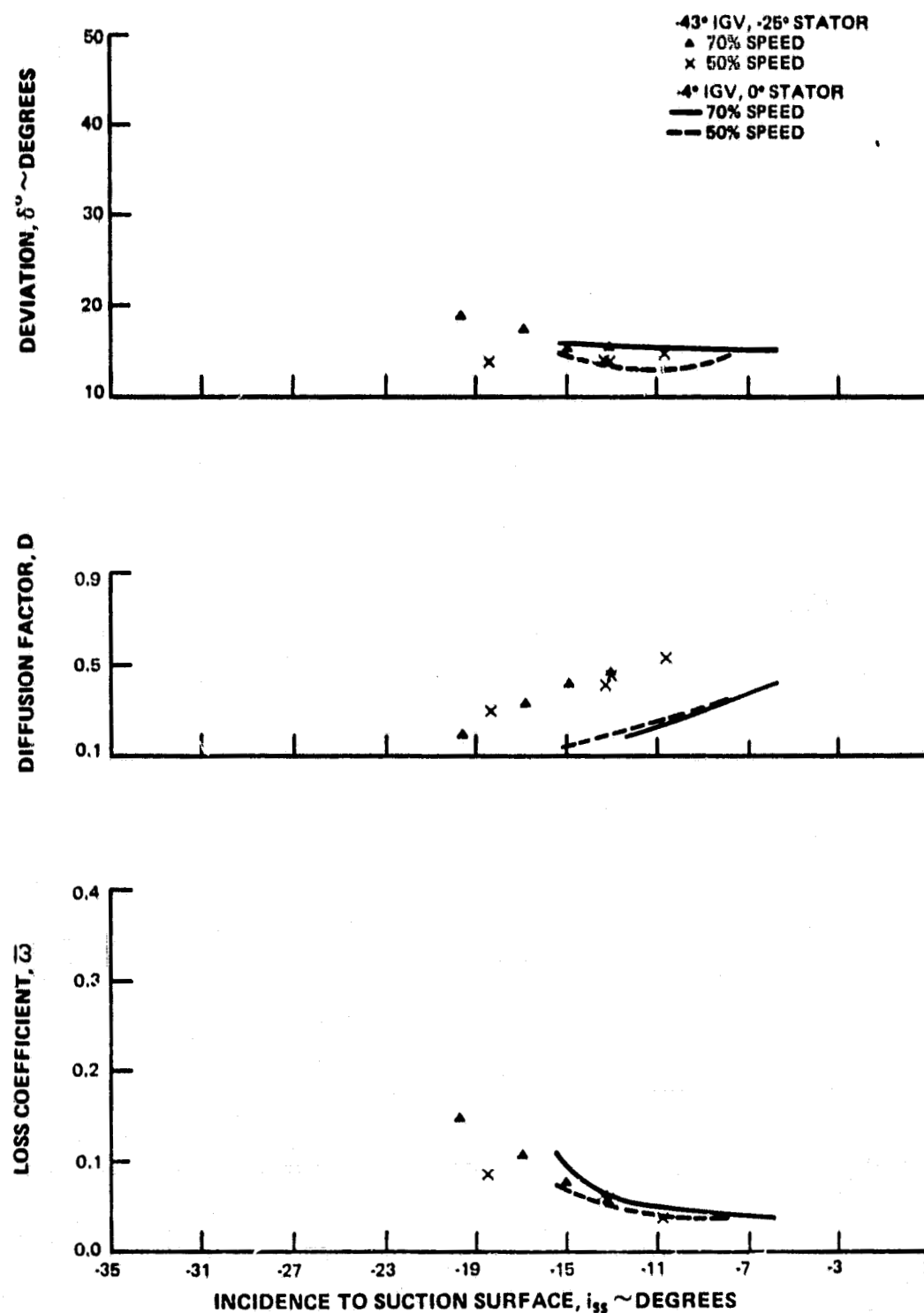


Figure 77 Stator Vane Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 50 Percent Span - Inlet Guide Vane and Stator at Design and Closed Stagger Angles

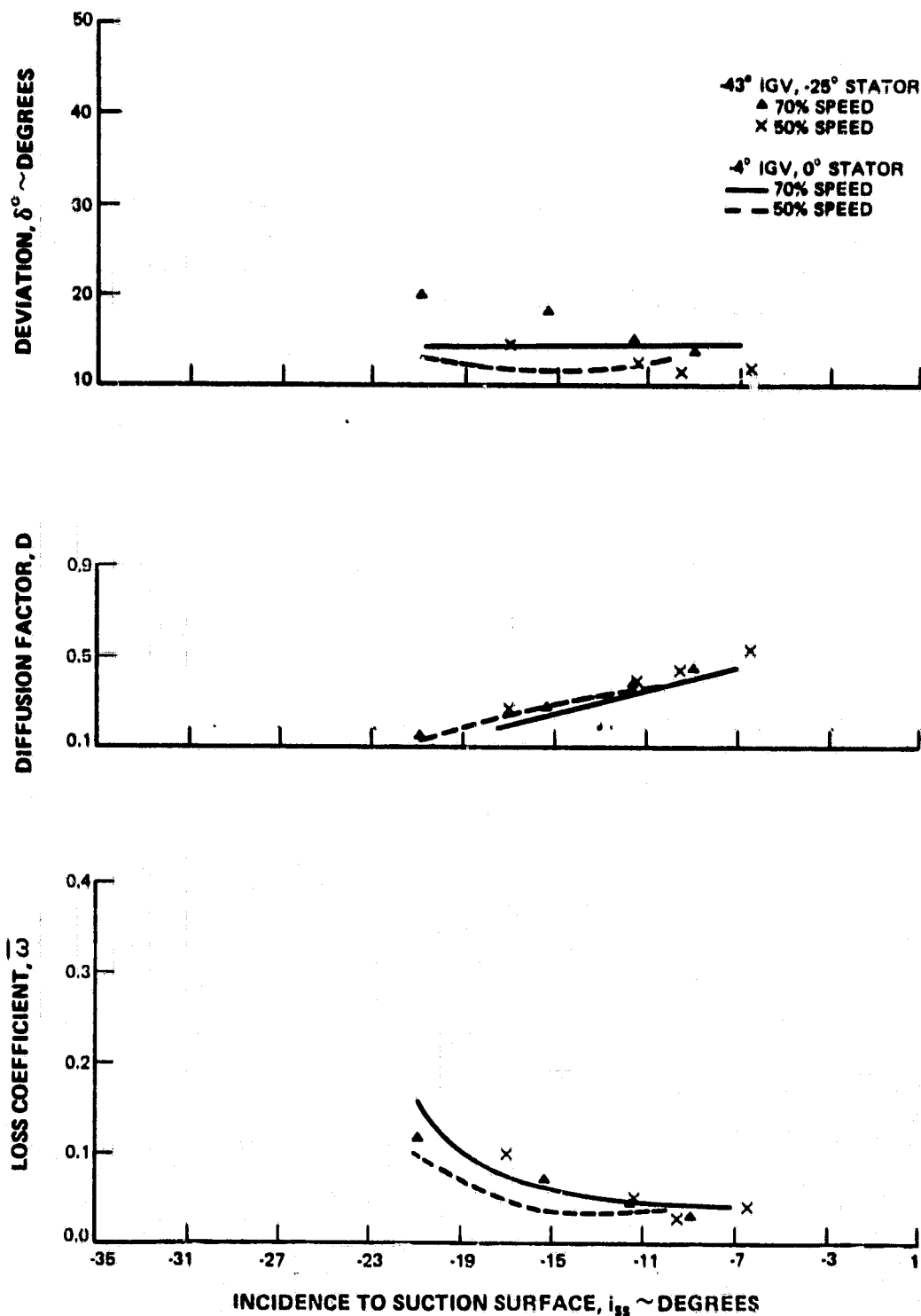


Figure 78 Stator Vane Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 70 Percent Span - Inlet Guide Vane and Stator at Design and Closed Stagger Angles



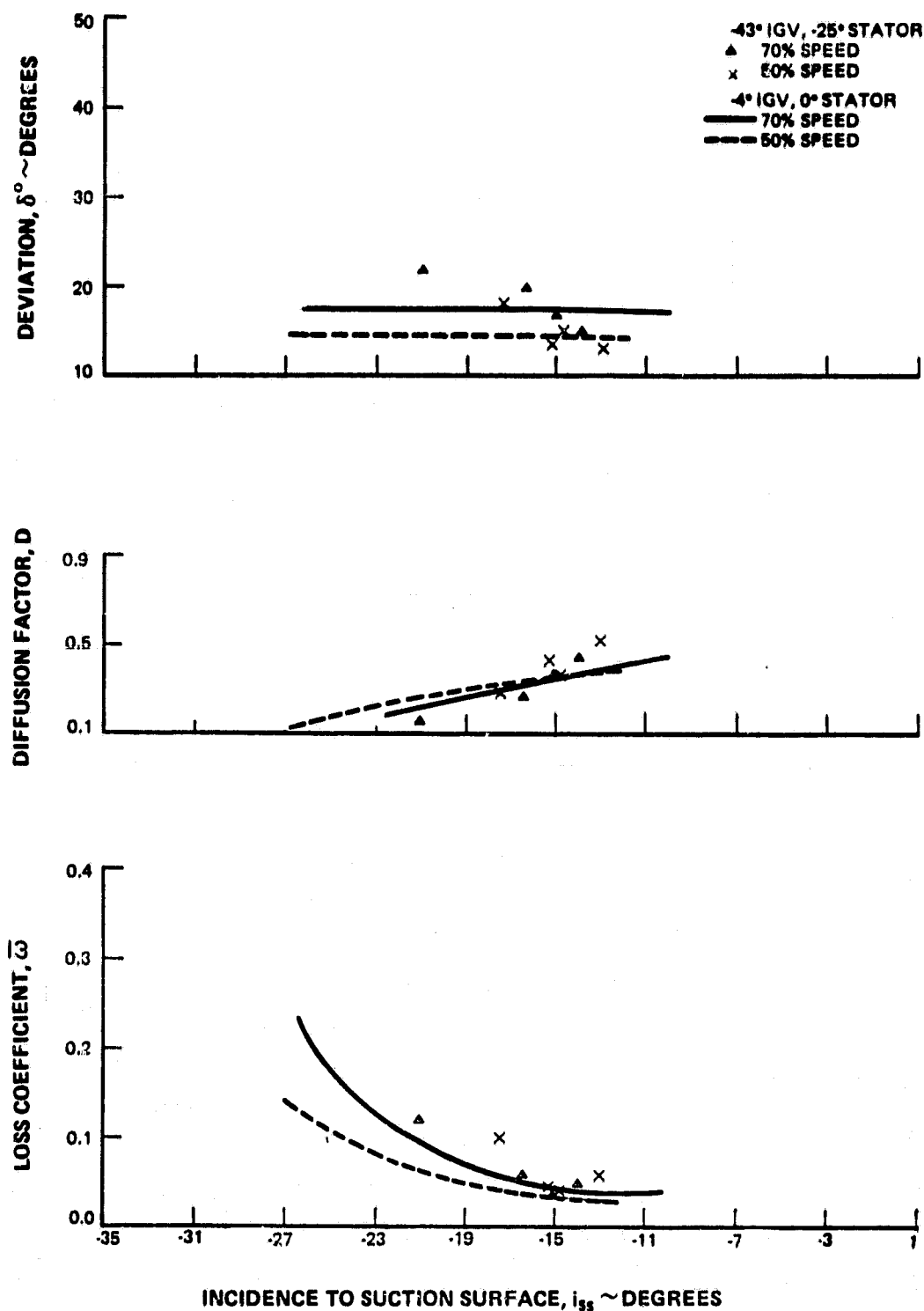


Figure 79 Stator Vane Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 85 Percent Span - Inlet Guide Vane and Stator at Design and Closed Stagger Angles

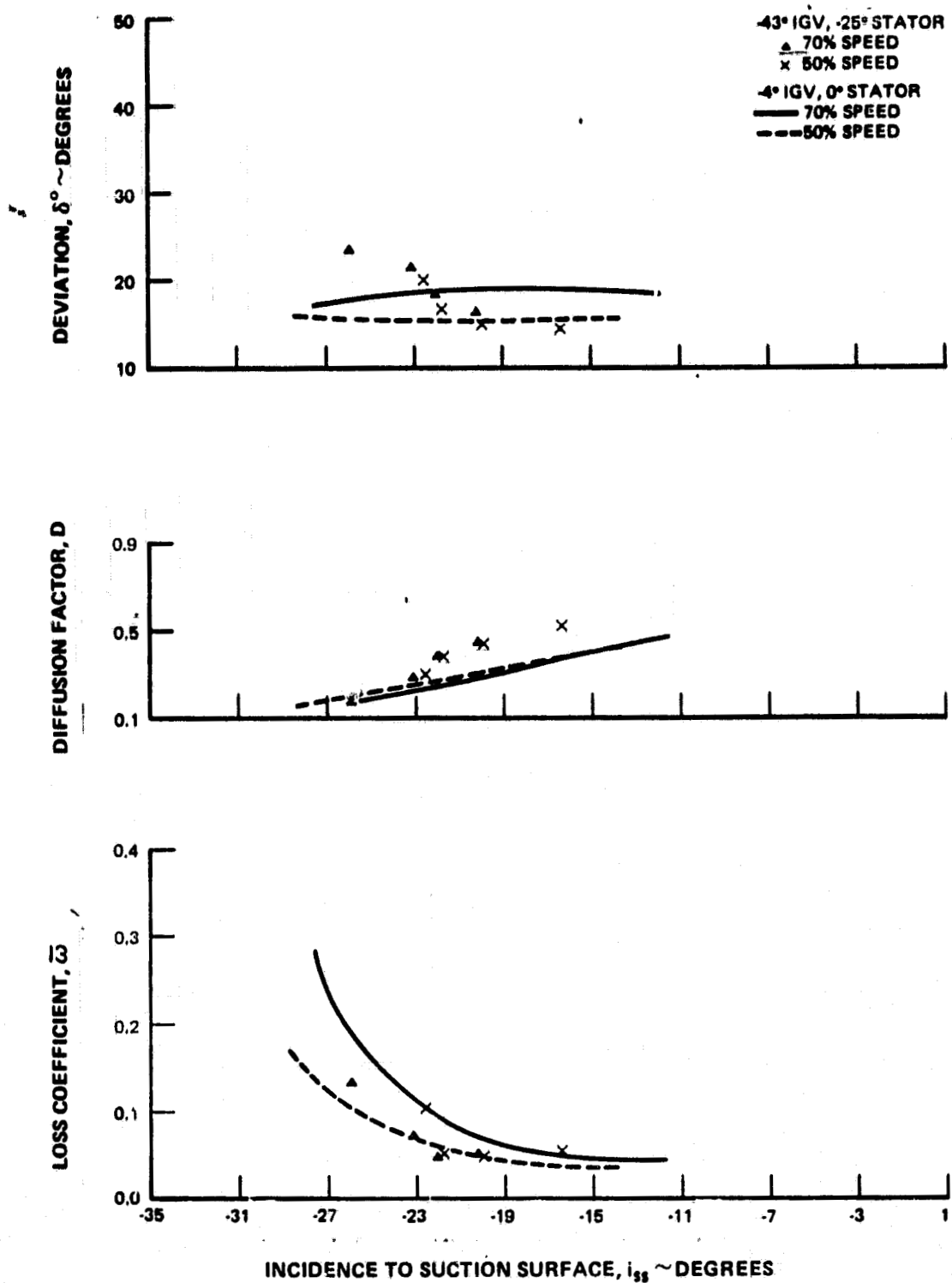


Figure 80 Stator Vane Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 90 Percent Span - Inlet Guide Vane and Stator at Design and Closed Stagger Angles

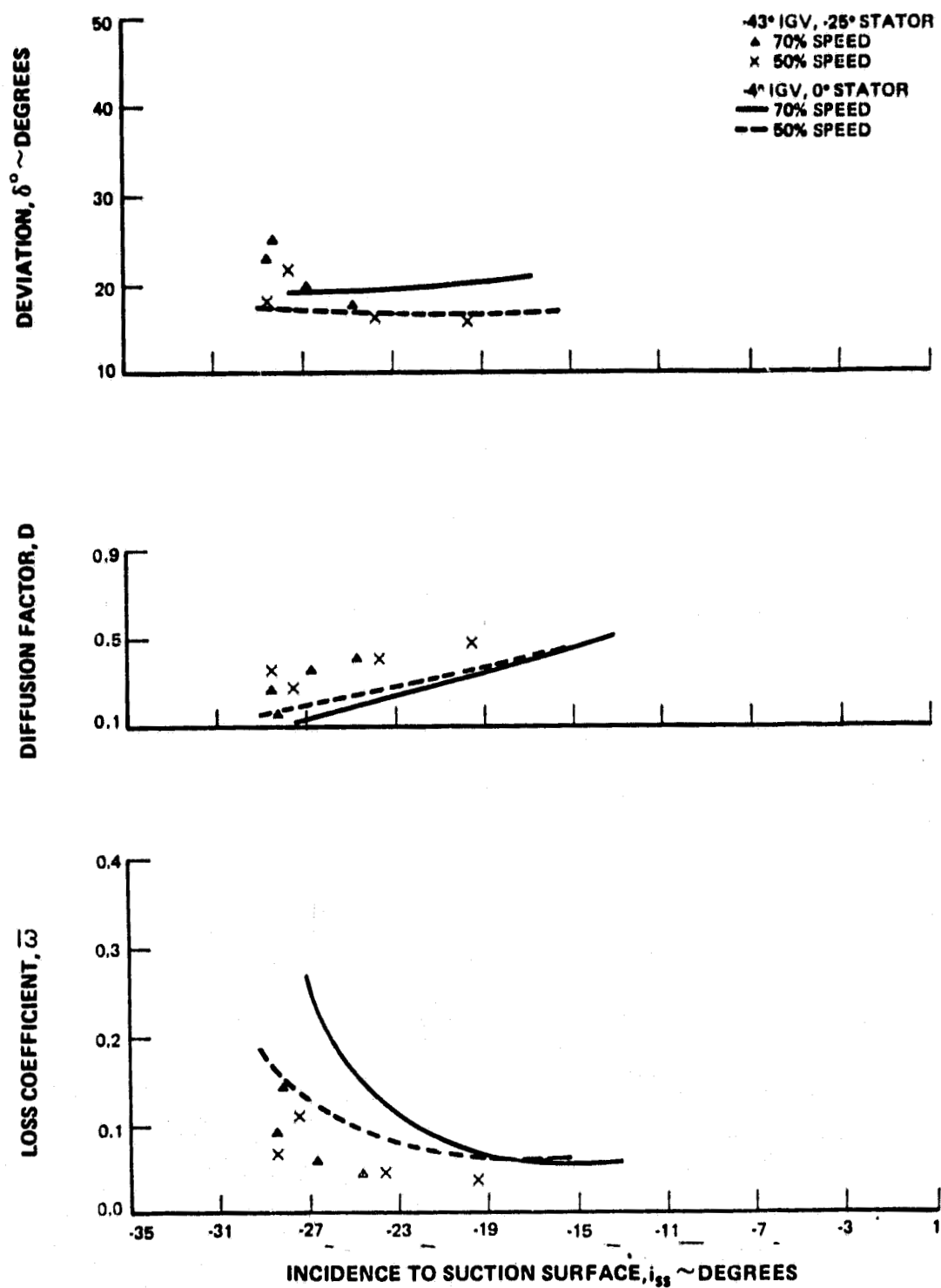


Figure 81 Stator Vane Element Plots Showing Deviation Angle, Diffusion Factor, and Loss Coefficient as Functions of Suction Surface Incidence Angle at 95 Percent Span - Inlet Guide Vane and Stator at Design and Closed Stagger Angles

## APPENDIX A

### SYMBOLS

A	area, meters <sup>2</sup> (inches <sup>2</sup> )
av	average
C <sub>p</sub>	specific heat at constant pressure, joule/kg-K (Btu/lbm-°R)
D	diffusion factor
g <sub>c</sub>	conversion factor, 32.17 lbm-ft/lbf-sec <sup>2</sup>
i <sub>m</sub>	incidence angle, angle between inlet air direction and line tangent to blade mean camber line at leading edge, degrees
i <sub>ss</sub>	incidence angle, angle between inlet air direction and line tangent to blade suction surface at leading edge, degrees
IGV	inlet-guide-vane
J	conversion factor, 1.00m-kj/joule (778 ft-lbf/Btu)
N	rotor speed, rpm
P <sub>T</sub>	total pressure, N/m <sup>2</sup> or lbf/ft <sup>2</sup>
P <sub>S</sub>	static pressure, N/m <sup>2</sup> or lbf/ft <sup>2</sup>
R	gas constant for air
r	radius measured from rig centerline, meters (inches)
SL	streamline number
T <sub>T</sub>	total temperature, K (°R)
T <sub>S</sub>	static temperature, K (°R)
t	blade maximum thickness, meters (inches)
U	rotor speed, m/sec (ft/sec)
V	air velocity, m/sec (ft/sec)
V <sub>m</sub>	meridional velocity $(V_r^2 + V_z^2)^{1/2}$ , m/sec (ft/sec)
V <sub>θ</sub>	tangential velocity, m/sec (ft/sec)
W	mass flow rate, kg/sec (lbm/sec)

# SYMBOLS (Con't)

$z$	axial distance - meters (inches)
$\beta$	absolute air angle, $\cot^{-1} (V_m/V_\theta)$ , degrees
$\beta'$	relative air angle, $\cot^{-1} (V_m/V_\theta')$ , degrees
$\Delta \beta$	air turning angle, degrees
$\gamma$	ratio of specific heats for air
$\delta$	ratio of total pressure to standard pressure of $1.01325 \times 10^5 \text{ N/m}^2$ ( $2.116 \times 10^3 \text{ lbf/ft}^2$ )
$\delta^\circ$	deviation angle, exit air angle minus tangent to blade mean camber line at trailing edge, degrees
$\epsilon$	angle between tangent to streamline projected on meridional plane and axial direction, degrees
$\eta$	efficiency
$\theta$	ratio of total temperature to standard temperature of $288.16\text{K}$ ( $518.7^\circ\text{R}$ )
$\rho$	mass density - $\text{kg/m}^3$ ( $\text{lbm/ft}^3$ )
$\sigma$	solidity, ratio of aerodynamic chord to gap between blades
$\omega$	angular velocity of rotor, radians/sec
$\bar{\omega}$	total pressure loss coefficient

## SUPERSCRIPTS

'	relative to rotor
*	blade metal angle

## SUBSCRIPTS

ad	adiabatic
des.	design
in	inlet
m	meridional direction

# SUBSCRIPTS (Cont'd)

n	selected operating point
p	polytropic or profile
r	radial direction; radius
r	ratio (e.g., $P_{T,r}$ = total pressure ratio)
RLE	rotor leading edge
RTE	rotor trailing edge
SLE	stator leading edge
STE	stator trailing edge
ss	suction surface
z	axial component
$\theta$	tangential component
0	inlet flow measuring orifice
1	plenum chamber
2	instrument plane upstream of intermediate case strut
3	instrument plane upstream of rotor
4	instrument plane downstream of rotor
5	instrument plane downstream of stator
6	instrument plane in stage exit duct

## APPENDIX B

### PERFORMANCE PARAMETERS

a) Relative total temperature

$$T'_{T,RLE} = T_{S,RLE} \left[ 1 + \frac{\gamma - 1}{2} (M'_{RLE})^2 \right] \quad (\text{rotor}) \text{ IN}$$

$$T'_{T,RTE} = T'_{T,RLE} + \left[ \frac{(\omega r)_{RLE}^2 - (\omega r)_{RTE}^2}{\frac{2}{\gamma - 1} R_{gc}} \right] \quad (\text{rotor}) \text{ OUT}$$

b) Incidence angle based on mean camber line

$$i_m = \beta'_{RLE} - \beta^*_{RLE} \quad (\text{rotor})$$

$$i_m = \beta_{SLE} - \beta^*_{SLE} \quad (\text{stator})$$

Incidence angle based on suction surface metal angle

$$i_{ss} = \beta'_{RLE} - \beta^*_{ss,RLE} \quad (\text{rotor})$$

$$i_{ss} = \beta_{SLE} - \beta^*_{ss,SLE} \quad (\text{stator})$$

c) Deviation angle

$$\delta^o = \beta'_{RTE} - \beta^*_{RTE} \quad (\text{rotor})$$

$$\delta^o = \beta_{STE} - \beta^*_{STE} \quad (\text{stator})$$

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d) Diffusion factor

$$D = 1 - \frac{V'_{RTE}}{V'_{RLE}} + \frac{r_{RTE} V'_{\theta RTE} - r_{RLE} V'_{\theta RLE}}{(r_{RTE} + r_{RLE}) \sigma V'_{RLE}} \quad (\text{rotor})$$

$$D = 1 - \frac{V_{STE}}{V_{SLE}} + \frac{r_{SLE} V_{\theta STE} - r_{STE} V_{\theta SLE}}{(r_{SLE} + r_{STE}) \sigma V_{SLE}} \quad (\text{stator})$$

e) Loss coefficient

$$\bar{\omega} = \frac{P'_{T, RLE} \left[ \frac{T'_{T, RTE}}{T'_{T, RLE}} \right]^{\frac{\gamma}{\gamma-1}} - P'_{T, RTE}}{P'_{T, RLE} - P_{S, RLE}} \quad (\text{rotor})$$

$$\bar{\omega} = \frac{P_{T, SLE} - P_{T, STE}}{P_{T, SLE} - P_{S, SLE}} \quad (\text{stator})$$

f) Loss parameter

$$\frac{\bar{\omega} \cos \beta'_{RTE}}{2 \sigma} \quad (\text{rotor})$$

$$\frac{\bar{\omega} \cos \beta_{STE}}{2 \sigma} \quad (\text{stator})$$



g) Polytropic efficiency

$$\eta_p = \frac{\frac{\gamma-1}{\gamma} \ln \frac{P_{T,RTE}}{P_{T,RLE}}}{\ln \frac{T_{T,RTE}}{T_{T,RLE}}} \quad (\text{rotor})$$

$$\eta_p = \frac{\frac{\gamma-1}{\gamma} \ln \frac{P_{T,STE}}{P_{T,RLE}}}{\ln \frac{T_{T,STE}}{T_{T,RLE}}} \quad (\text{stage})$$

h) Adiabatic efficiency

$$\eta_{ad} = \frac{\left[ \frac{P_{T,RTE}}{P_{T,RLE}} \right]^{\frac{\gamma-1}{\gamma}} - 1}{\left[ \frac{T_{T,RTE}}{T_{T,RLE}} \right] - 1} \quad (\text{rotor})$$

$$\eta_{ad} = \frac{\left[ \frac{P_{T,STE}}{P_{T,RLE}} \right]^{\frac{\gamma-1}{\gamma}} - 1}{\left[ \frac{T_{T,STE}}{T_{T,RLE}} \right] - 1} \quad (\text{stage})$$

i) Surge margin

$$SM = \left[ \left( \frac{P_{T,STE}/P_{T,RLE}}{W\sqrt{\theta} / \delta} \right)_{\text{Stall}} \frac{W\sqrt{\theta} / \delta}{P_{T,STE}/P_{T,RLE}} \text{ Reference Point or Operating Point} - 1 \right] 100$$

APPENDIX C

Overall and Blade Element Performance Tabulations  
Design Stagger

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## COMPUTER TABLE SYMBOL TRANSLATION

## AIRFOIL AERODYNAMIC SUMMARY PRINT

PERCENT DESIGN SPEED (ROTOR PERFORMANCE)																		
SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	U-1 M/SEC	U-2 M/SEC	V'-1 M/SEC	V'-2 M/SEC	VO'-1 M/SEC	VO'-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN		
1																		
2																		
3	V <sub>RL</sub>		V <sub>m,RL</sub>		V <sub>o,RL</sub>		U <sub>RL</sub>		V' <sub>RL</sub>		V' <sub>o,RL</sub>		PV <sub>m,RL</sub>		C <sub>RL</sub>			
4		V <sub>RT</sub>		V <sub>m,RT</sub>		V <sub>o,RT</sub>	U <sub>RT</sub>		V' <sub>RT</sub>		V' <sub>o,RT</sub>			PV <sub>m,RT</sub>		C <sub>RT</sub>		
5																		
6																		
7																		
8																		
9																		
SL	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	M-1	M-2	M'-1	M'-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURNO DEGREE	D FAC	OMEGA-B TOTAL	LOSS-P TOTAL	POZ/ POI	XEFF-A TOTAL	YEFF-P TOTAL
1																		
2																		
3	B <sub>RL</sub>		B' <sub>RL</sub>		M <sub>RL</sub>		M' <sub>RL</sub>		i <sub>ss</sub>		δ°		D		$\frac{\overline{w} \cos \beta'}{20}$ RTE		η <sub>ad</sub>	
4		B <sub>RT%</sub>		B' <sub>RT</sub>		M <sub>RT</sub>		M' <sub>RT</sub>		i <sub>m</sub>		Δβ'		ω		$\frac{P_{T,RTE}}{P_{T,RL}}$	$\frac{RTE}{RL}$	η <sub>p</sub>
5																		
6																		
7																		
8																		RTE RL
9																		
SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	EPSI-1 DEGREE	EPSI-2 DEGREE	PCT TE SPAN	
1																		
2																		
3	V <sub>RL</sub>		V <sub>m,RL</sub>		V <sub>o,RL</sub>		U <sub>RL</sub>		V' <sub>RL</sub>		V' <sub>o,RL</sub>		PV <sub>m,RL</sub>		C <sub>RL</sub>		% span	
4		V <sub>RT</sub>		V <sub>m,RT</sub>		V <sub>o,RT</sub>	U <sub>RT</sub>		V' <sub>RT</sub>		V' <sub>o,RT</sub>			PV <sub>m,RT</sub>		C <sub>RT</sub>		
5																		
6																		
7																		
8																		
9																	RTE	
	WC1/A1 LBM/SEC	WC1/A1 KG/SEC							TO2/TO1	PO2/PO1	EFF-AD ROTOR %	EFF-P ROTOR %						
	SQFT W/G	SQM W/G							$\frac{T_{T,RTE}}{T_{T,RL}}$	$\frac{P_{T,RTE}}{P_{T,RL}}$	η <sub>ad</sub>	η <sub>p</sub>						
	δA	δA							$\frac{RTE}{RL}$	$\frac{RTE}{RL}$								

COMPUTER TABLE SYMBOL TRANSLATION

AIRFOIL AERODYNAMIC SUMMARY PRINT																
PERCENT DESIGN SPEED (STATOR PERFORMANCE)						RUN NO XXX SPEED CODE XX POINT NO X										
SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN						
1																
2																
3	VSLE		VM,SLE		VO,SLE		$\rho V_{m,SLE}$		$\epsilon_{SLE}$							
4		VSTE		VM,STE		VO,STE		$\rho V_{m,STE}$		$\epsilon_{STE}$						
5																
6																
7																
8																
9																
SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCH DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	XEFF-A TOT-STG	XEFF-P TOT-STG
1																
2	$\beta_{SLE}$															
3		$\beta_{STE}$	$M_{SLE}$	$M_{STE}$	$i_{ss}$	$i_m$	$\delta^0$	$\Delta \beta$	D		$\frac{\omega \cos \beta}{2\sigma}$		$\frac{P_{T,STE}}{P_{T,RLE}}$		$\eta_{ad}$	
4													$\frac{P_{T,STE}}{P_{T,RLE}}$		$\frac{T_{T,STE}}{T_{T,RLE}}$	$\frac{S_{TLE}}{RLE}$
5																$\frac{S_{TLE}}{RLE}$
6																
7																
8																
9																
SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE					
1																
2																
3	VSLE		VM,SLE		VO,SLE		$\rho V_{m,SLE}$		X span		$\epsilon_{SLE}$					
4		VSTE		VM,STE		VO,STE		$\rho V_{m,STE}$	STE		$\epsilon_{STE}$					
5																
6																
7																
8																
9																
	NCORR INLET RPM $\frac{N}{\sqrt{\sigma}}$	WCORR INLET LBM/SEC	WCORR INLET KG/SEC $\frac{W\sqrt{\sigma}}{\delta}$						TO/TO STAGE $\frac{T_{T,STE}}{T_{T,RLE}}$	PO2/PO1 $\frac{P_{T,STE}}{P_{T,RLE}}$	PO/PO STAGE $\frac{P_{T,STE}}{P_{T,RLE}}$	EFF-AD STAGE X $\eta_{ad}$	EFF-P STAGE X $\eta_p$			
	RLE	RLE	RLE									STE RLE	STE RLE			

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## AIRFOIL AERODYNAMIC SUMMARY PRINT

105 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 5 POINT NO 1

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	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	183.5	315.6	181.3	204.6	28.1	240.3	287.8	296.3	316.7	212.1	-259.7	-56.1	184.25	261.69	0.0382	0.0912
2	193.8	309.9	190.8	199.4	33.9	237.3	298.8	304.6	326.5	210.4	-265.0	-67.3	194.69	258.70	0.0192	0.0763
3	196.7	304.5	193.2	195.9	36.5	233.1	309.6	312.7	334.6	211.4	-273.1	-79.6	197.05	257.15	0.0028	0.0625
4	200.4	294.4	195.7	189.4	43.2	225.4	340.5	337.3	355.9	220.0	-297.3	-111.9	198.95	256.62	-0.0418	0.0225
5	201.7	284.9	194.9	177.7	51.7	222.7	379.2	370.1	381.1	230.9	-327.5	-147.4	197.93	248.46	-0.0956	-0.0311
6	199.7	275.1	191.5	164.8	56.8	220.3	415.2	402.9	406.3	246.0	-358.4	-182.6	194.91	235.96	-0.1423	-0.0852
7	195.8	267.2	187.6	148.9	55.9	221.8	440.3	427.5	427.7	253.9	-384.4	-205.7	191.31	214.38	-0.1701	-0.1231
8	192.7	259.9	184.7	135.3	54.9	221.9	448.2	435.7	434.5	253.0	-393.3	-213.8	188.15	194.14	-0.1751	-0.1323
9	189.8	248.8	181.9	114.8	54.0	220.8	455.8	443.9	441.1	250.9	-401.9	-223.1	185.22	164.17	-0.1722	-0.1367

SL	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	M-1	M-2	M'-1	M'-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	XEFF-A TOTAL	XEFF-P TOTAL
1	8.8	49.6	55.01	15.35	0.5556	0.9068	0.9589	0.6096	-2.21	4.06	12.83	39.66	0.5362	0.0726	0.0211	1.9313	94.90	95.35
2	10.0	50.0	54.21	18.68	0.5888	0.8894	0.9920	0.6039	-1.17	4.96	11.22	35.53	0.5499	0.0987	0.0288	1.8859	92.57	93.20
3	10.7	50.0	54.71	22.15	0.5981	0.8721	1.0175	0.6056	-0.05	5.93	11.33	32.56	0.5539	0.0996	0.0290	1.8724	92.14	92.80
4	12.5	50.0	56.66	30.57	0.6103	0.8395	1.0840	0.6273	1.81	7.48	10.53	26.08	0.5502	0.0814	0.0232	1.8770	92.90	93.50
5	14.8	51.3	59.25	39.57	0.6145	0.8069	1.1613	0.6538	2.28	7.17	8.42	19.68	0.5494	0.0792	0.0215	1.8978	92.45	93.10
6	16.5	53.0	61.90	47.77	0.6081	0.7729	1.2372	0.6911	2.58	6.83	6.72	14.12	0.5410	0.0943	0.0236	1.9121	90.39	91.23
7	16.6	56.0	64.02	53.94	0.5952	0.7424	1.3005	0.7056	2.57	6.08	6.39	10.08	0.5531	0.1494	0.0339	1.9211	84.56	85.90
8	16.6	58.5	64.89	57.55	0.5851	0.7180	1.3196	0.6989	2.59	5.83	8.14	7.34	0.5649	0.1800	0.0377	1.9074	81.38	82.98
9	16.5	62.4	65.68	62.67	0.5758	0.6832	1.3384	0.6890	2.20	5.19	11.64	3.00	0.5775	0.2158	0.0391	1.8743	77.57	79.44

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN
1	602.1	1035.4	595.0	671.3	92.2	788.3	944.2	972.3	1039.3	696.1	-852.1	-184.0	37.74	53.60	2.189	5.228	0.0500
2	635.8	1016.8	626.1	654.2	111.1	778.4	980.4	999.2	1071.3	690.4	-869.3	-220.8	39.87	52.98	1.099	4.369	0.1000
3	645.2	999.0	634.0	642.6	119.6	764.9	1015.6	1026.1	1097.7	693.7	-896.1	-261.2	40.36	52.67	0.159	3.581	0.1499
4	657.5	966.0	642.0	621.4	141.7	739.6	1117.2	1106.8	1167.8	721.8	-975.4	-367.2	40.75	52.56	-2.397	1.292	0.3000
5	661.6	934.8	639.6	583.0	169.5	730.8	1244.0	1214.3	1250.4	757.5	-1074.5	-483.6	40.54	50.89	-5.477	-1.783	0.5000
6	655.3	902.5	628.2	540.6	186.3	722.7	1362.2	1321.9	1333.2	807.0	-1175.9	-599.2	39.92	48.33	-8.152	-4.882	0.7000
7	642.3	876.6	615.6	488.7	183.4	727.7	1444.6	1402.5	1403.4	833.2	-1261.2	-674.8	39.18	43.91	-9.747	-7.052	0.8500
8	632.1	852.7	605.9	443.8	180.2	728.1	1470.7	1429.5	1425.6	830.0	-1290.5	-701.4	38.54	39.76	-10.031	-7.578	0.9000
9	622.7	816.4	597.0	376.8	177.1	724.3	1495.6	1456.3	1447.3	823.3	-1318.5	-732.0	37.93	33.62	-9.866	-7.833	0.9500
	WC1/A1		WC1/A1					T02/T01	P02/P01	EFF-AD	EFF-P						
	LBM/SEC		KG/SEC							ROTOR	ROTOR						
	SQFT		SQM							%	%						
	39.59		193.19							1.2236	1.8972	89.73	90.60				

# AIRFOIL AERODYNAMIC SUMMARY PRINT

105 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 104 SPEED CODE 5 POINT NO 1

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	329.4	234.3	233.0	222.7	232.9	72.8	287.10	321.96	0.1369	0.1481
2	326.0	233.1	230.1	219.8	230.9	77.7	286.19	319.86	0.1252	0.1319
3	322.5	235.0	228.4	220.4	227.7	81.5	286.15	322.99	0.1133	0.1165
4	316.5	239.8	225.2	221.6	222.3	91.6	288.72	330.33	0.0760	0.0740
5	309.7	239.2	215.6	217.8	222.3	98.8	284.00	328.22	0.0256	0.0224
6	300.8	235.3	202.6	211.0	222.4	104.1	273.49	319.44	-0.0240	-0.0278
7	293.5	231.4	187.4	207.3	225.8	102.8	254.97	311.37	-0.0615	-0.0675
8	287.0	225.9	176.1	204.3	226.7	96.4	239.06	304.71	-0.0753	-0.0824
9	276.6	211.4	158.9	193.9	226.4	84.1	214.89	286.10	-0.0908	-0.0993

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	%EFF-A TOT-STG	%EFF-P TOT-STG
1	44.9	18.1	0.9536	0.6499	-5.32	-2.65	26.20	26.82	0.4558	0.1220	0.0416	0.9460	1.8243	1.2176	86.05	87.17
2	45.0	19.4	0.9434	0.6474	-3.62	-0.64	25.33	25.57	0.4498	0.1144	0.0395	0.9501	1.7907	1.2144	84.42	85.64
3	44.8	20.2	0.9322	0.6534	-3.12	0.16	24.42	24.58	0.4346	0.0899	0.0316	0.9614	1.7999	1.2128	85.87	86.98
4	44.6	22.4	0.9124	0.6681	-3.57	0.54	22.70	22.15	0.4021	0.0488	0.0179	0.9797	1.8392	1.2121	89.63	90.47
5	45.9	24.4	0.8877	0.6647	-5.91	-0.87	19.81	21.47	0.3965	0.0481	0.0187	0.9807	1.8612	1.2171	89.39	90.27
6	47.7	26.3	0.8554	0.6509	-10.52	-4.70	18.14	21.41	0.3985	0.0611	0.0250	0.9768	1.8671	1.2245	86.94	88.02
7	50.3	26.4	0.8249	0.6348	-15.45	-9.18	18.64	23.92	0.4150	0.0749	0.0321	0.9729	1.8697	1.2411	81.13	82.71
8	52.1	25.3	0.8021	0.6166	-16.70	-10.32	18.34	26.89	0.4386	0.0796	0.0350	0.9723	1.8591	1.2477	78.18	79.98
9	54.9	23.5	0.7677	0.5732	-16.92	-10.45	17.57	31.47	0.4946	0.1049	0.0474	0.9660	1.8131	1.2529	73.20	75.32

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	1080.9	768.7	764.4	730.6	764.2	238.9	58.80	65.94	0.0550	7.846	8.483
2	1069.5	765.0	755.0	721.2	757.5	255.0	58.61	65.51	0.1083	7.174	7.558
3	1058.0	770.9	749.3	723.1	747.0	267.3	58.61	66.15	0.1610	6.493	6.676
4	1038.4	786.7	739.0	727.0	729.5	290.6	59.13	67.65	0.3151	4.355	4.240
5	1016.3	784.7	707.5	714.6	729.5	324.1	58.16	67.22	0.5165	1.468	1.282
6	987.1	772.0	664.8	692.3	729.6	341.5	56.01	65.42	0.7145	-1.374	-1.594
7	962.8	759.3	615.0	680.3	740.9	337.3	52.22	63.77	0.8503	-3.525	-3.869
8	941.7	741.0	577.7	670.2	743.7	316.2	48.96	62.41	0.9080	-4.314	-4.723
9	907.4	693.6	521.2	636.3	742.7	276.0	44.01	58.60	0.9548	-5.200	-5.688
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1 STAGE	PO/PO STAGE	EFF-AD STAGE	EFF-P STAGE
	12798.70	102.68	46.56				1.2236	0.9720	1.8440	85.39	86.58

## AIRFOIL AERODYNAMIC SUMMARY PRINT

105 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 5 POINT NO 3

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	176.6	313.0	176.3	198.8	28.4	241.8	287.8	296.3	313.6	206.1	-259.3	-54.6	180.86	257.35	0.0383	0.0915
2	189.1	307.0	186.2	194.7	32.9	237.3	298.8	304.5	324.6	206.0	-265.9	-67.2	191.75	255.79	0.0193	0.0768
3	191.9	301.4	188.6	190.9	35.5	233.3	309.6	312.7	332.6	206.8	-274.0	-79.4	194.11	253.69	0.0028	0.0634
4	195.5	291.7	190.9	184.2	42.1	226.2	340.5	337.3	354.3	215.1	-298.4	-111.1	195.92	252.58	-0.0418	0.0242
5	196.8	283.3	190.2	171.8	50.4	225.3	379.1	370.1	379.8	224.7	-328.7	-144.8	194.95	243.17	-0.0950	-0.0289
6	195.1	275.3	187.2	159.2	55.0	224.6	415.2	402.9	405.9	239.0	-360.1	-178.3	192.18	230.94	-0.1407	-0.0829
7	191.4	268.6	183.6	143.1	54.3	227.3	440.3	427.5	427.4	246.0	-386.0	-200.2	188.70	208.89	-0.1667	-0.1204
8	188.4	262.8	180.7	131.8	53.3	227.4	448.2	435.7	434.3	246.5	-395.0	-208.3	185.62	192.15	-0.1708	-0.1296
9	185.7	254.5	178.1	116.0	52.3	226.5	455.8	443.9	441.1	246.4	-403.5	-217.4	182.76	168.88	-0.1685	-0.1349

SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PO2/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	9.1	50.6	55.72	15.37	0.5399	0.8977	0.9479	0.5911	-1.50	4.78	12.85	40.35	0.5520	0.0706	0.0205	1.9407	95.15	95.57
2	10.0	50.7	54.97	19.07	0.5734	0.8793	0.9845	0.5900	-0.41	5.72	11.62	35.90	0.5618	0.0967	0.0282	1.8941	92.82	93.43
3	10.7	50.8	55.45	22.62	0.5826	0.8617	1.0100	0.5910	0.70	6.68	11.80	32.83	0.5664	0.0985	0.0286	1.8805	92.34	92.99
4	12.4	50.8	57.41	31.10	0.5943	0.8299	1.0770	0.6119	2.55	8.23	11.05	26.31	0.5638	0.0821	0.0233	1.8892	92.95	93.55
5	14.8	52.6	59.95	40.02	0.5986	0.8000	1.1552	0.6344	2.98	7.87	8.87	19.93	0.5677	0.0846	0.0229	1.9191	92.13	92.81
6	16.4	54.5	62.54	48.06	0.5931	0.7706	1.2337	0.6691	3.23	7.48	7.01	14.48	0.5630	0.1039	0.0259	1.9471	89.75	90.66
7	16.5	57.7	64.58	54.28	0.5811	0.7433	1.2976	0.6808	3.14	6.64	6.73	10.30	0.5774	0.1597	0.0360	1.9651	84.10	85.52
8	16.4	59.8	65.43	57.55	0.5714	0.7235	1.3172	0.6785	3.13	6.37	8.14	7.88	0.5859	0.1847	0.0387	1.9598	81.59	83.24
9	16.4	62.8	66.20	61.81	0.5625	0.6967	1.3363	0.6746	2.73	5.71	10.78	4.39	0.5940	0.2126	0.0396	1.9410	78.76	80.63

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN
1	586.1	1026.9	578.6	652.1	93.3	793.3	944.2	972.3	1029.0	676.2	-850.9	-179.0	37.04	52.71	2.193	5.245	0.0500
2	620.3	1007.2	610.8	638.9	108.1	778.7	980.4	999.2	1064.9	675.9	-872.4	-220.6	39.27	52.39	1.104	4.403	0.1000
3	629.6	989.1	618.7	626.3	116.6	765.5	1015.6	1026.1	1091.4	678.4	-899.1	-260.6	39.76	51.96	0.163	3.633	0.1499
4	641.4	957.1	626.3	604.3	138.0	742.2	1117.2	1106.8	1162.4	705.7	-979.2	-364.5	40.13	51.73	-2.396	1.387	0.3000
5	645.7	929.6	624.2	563.6	165.4	739.2	1244.0	1214.3	1246.1	737.2	-1078.6	-475.1	39.93	49.80	-5.445	-1.654	0.5000
6	640.2	903.2	614.1	522.3	180.6	736.9	1362.2	1321.9	1331.6	784.2	-1181.5	-585.0	39.36	47.30	-8.063	-4.750	0.7000
7	628.1	881.3	602.3	469.4	178.1	745.8	1444.6	1402.5	1402.5	807.2	-1266.5	-656.7	38.65	42.78	-9.551	-6.897	0.8500
8	618.3	862.3	593.0	432.3	174.8	746.1	1470.7	1429.4	1425.1	808.6	-1295.8	-683.4	38.02	39.35	-9.783	-7.424	0.9000
9	609.2	834.9	584.4	380.6	171.7	743.1	1495.6	1456.3	1447.1	808.5	-1323.8	-713.2	37.43	34.59	-9.653	-7.727	0.9500
	WC1/A1	WC1/A1								TO2/TO1	PO2/PO1	EFF-AD	EFF-P				
	LBM/SEC	LBM/SEC											ROTOR	ROTOR			
	SQFT	SQFT											%	%			
	38.99	190.24								1.2293	1.9237	89.57	90.48				

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AIRFOIL AERODYNAMIC SUMMARY PRINT

105 PERCENT DESIGN SPEED (STATOR PERFORMANCE) RUN NO 104 SPEED CODE 5 POINT NO 3

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	324.5	211.3	224.4	204.2	234.4	54.3	281.90	311.00	0.1376	0.1481
2	320.7	210.0	222.5	201.3	230.9	59.7	282.05	308.30	0.1266	0.1322
3	317.0	211.9	220.4	202.5	227.8	62.3	281.54	311.94	0.1156	0.1172
4	311.3	216.6	217.2	203.6	223.1	74.1	283.75	317.84	0.0807	0.0759
5	306.1	220.1	207.8	203.5	224.9	84.0	278.56	320.81	0.0320	0.0255
6	299.8	220.9	196.0	202.1	226.8	89.2	269.96	319.87	-0.0192	-0.0252
7	293.9	219.9	181.1	201.3	231.5	88.5	250.39	315.81	-0.0603	-0.0669
8	288.8	214.2	171.5	198.2	232.3	81.3	236.91	308.74	-0.0753	-0.0826
9	281.1	201.4	158.3	188.7	232.2	70.3	218.37	290.96	-0.0912	-0.0997

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	P02/ P01	P0/P0 STAGE	TO/TO STAGE	%EFF-A TOT-STG	%EFF-P TOT-STG
1	46.1	14.9	0.9364	0.5814	-4.07	-1.40	22.99	31.29	0.5408	0.1087	0.0377	0.9531	1.8476	1.2189	87.52	88.54
2	46.0	16.5	0.9249	0.5784	-2.64	0.34	22.39	29.49	0.5340	0.1019	0.0358	0.9567	1.8115	1.2155	85.81	86.94
3	45.9	17.1	0.9132	0.5842	-2.07	1.21	21.24	28.81	0.5209	0.0790	0.0282	0.9671	1.8184	1.2140	87.01	88.05
4	45.7	20.0	0.8942	0.5982	-2.42	1.69	20.23	25.77	0.4899	0.0490	0.0183	0.9801	1.8516	1.2143	89.75	90.59
5	47.3	22.4	0.8738	0.6066	-4.52	0.52	17.84	24.84	0.4752	0.0394	0.0156	0.9845	1.8882	1.2217	89.76	90.63
6	49.2	23.8	0.8485	0.6061	-9.03	-3.21	15.70	25.34	0.4729	0.0433	0.0181	0.9837	1.9133	1.2325	87.53	88.61
7	51.9	23.7	0.8224	0.5981	-13.79	-7.53	15.99	28.22	0.4872	0.0515	0.0226	0.9815	1.9277	1.2514	81.95	83.53
8	53.6	22.3	0.8037	0.5799	-15.29	-8.91	15.38	31.25	0.5163	0.0649	0.0292	0.9774	1.9170	1.2584	79.01	80.83
9	55.7	20.4	0.7778	0.5418	-16.14	-9.66	14.55	35.28	0.5724	0.0990	0.0457	0.9673	1.8792	1.2641	74.70	76.82

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	1064.8	693.4	736.4	670.1	769.1	178.1	57.74	63.69	0.0550	7.882	8.486
2	1052.1	689.1	729.9	660.6	757.7	196.0	57.77	63.14	0.1083	7.256	7.576
3	1040.0	695.1	723.1	664.4	747.5	204.4	57.66	63.89	0.1610	6.624	6.714
4	1021.5	710.8	712.5	667.9	732.0	243.0	58.11	65.10	0.3151	4.625	4.351
5	1004.5	722.3	681.7	667.7	737.7	275.6	57.05	65.71	0.5165	1.835	1.459
6	983.5	724.9	643.2	663.2	744.0	292.7	55.09	65.51	0.7145	-1.098	-1.443
7	964.4	721.4	594.3	660.4	759.5	290.2	51.28	64.68	0.8603	-3.454	-3.832
8	947.4	702.7	562.6	650.1	762.3	266.7	48.52	63.23	0.9080	-4.313	-4.734
9	922.1	660.7	519.4	619.1	762.0	230.6	44.72	59.59	0.9548	-5.226	-5.714
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	P02/P01	P0/P0 STAGE	EFF-AD STAGE	EFF-P STAGE
	12798.60	101.12	45.86				1.2293	0.9768	1.8790	86.06	87.24



## AIRFOIL AERODYNAMIC SUMMARY PRINT

105 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 5 POINT NO 4

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2		
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN		
1	179.3	312.9	177.3	201.0	26.7	239.8	287.8	296.3	315.6	208.8	-261.1	-56.5	181.63	260.65	0.0379	0.0913		
2	189.7	307.0	186.8	195.1	32.9	237.1	298.8	304.5	324.9	206.4	-265.9	-67.5	192.19	256.68	0.0186	0.0765		
3	192.5	301.6	189.2	191.0	35.6	233.4	309.6	312.7	332.9	206.9	-274.0	-79.4	194.52	254.20	0.0022	0.0630		
4	196.0	291.8	191.4	183.9	42.1	226.5	340.5	337.3	354.5	214.7	-298.4	-110.8	196.27	252.42	-0.0423	0.0238		
5	197.3	282.9	190.7	171.1	50.5	225.3	379.1	370.1	380.0	224.2	-328.7	-144.8	195.26	242.42	-0.0949	-0.0291		
6	195.6	275.1	187.7	159.5	55.1	224.1	415.2	402.9	406.0	239.6	-360.1	-178.7	192.53	231.75	-0.1401	-0.0828		
7	192.0	268.0	184.1	143.5	54.4	226.4	440.3	427.5	427.6	247.0	-385.9	-201.0	189.06	209.78	-0.1663	-0.1203		
8	189.0	261.6	181.3	131.1	53.4	226.4	448.2	435.7	434.5	247.0	-394.8	-209.3	185.98	191.40	-0.1703	-0.1294		
9	186.2	253.7	178.7	116.8	52.5	225.2	455.8	443.9	441.1	247.9	-403.3	-218.6	183.13	170.42	-0.1679	-0.1347		
SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PO2/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	8.5	50.1	55.76	15.72	0.5420	0.8975	0.9541	0.5988	-1.46	4.81	13.20	40.04	0.5461	0.0653	0.0190	1.9428	95.46	95.86
2	10.0	50.6	54.88	19.10	0.5755	0.8796	0.9858	0.5914	-0.50	5.62	11.65	35.78	0.5608	0.0914	0.0266	1.8970	93.19	93.77
3	10.7	50.7	55.36	22.60	0.5845	0.8621	1.0110	0.5913	0.61	6.59	11.77	32.77	0.5665	0.0949	0.0275	1.8834	92.60	93.23
4	12.4	50.9	57.33	31.06	0.5959	0.8300	1.0780	0.6107	2.48	8.15	11.01	26.27	0.5655	0.0813	0.0231	1.8914	93.02	93.62
5	14.8	52.7	59.88	40.13	0.6001	0.7988	1.1559	0.6329	2.92	7.80	8.98	19.75	0.5691	0.0845	0.0228	1.9187	92.13	92.81
6	16.4	54.4	62.47	48.08	0.5947	0.7703	1.2345	0.6708	3.16	7.41	7.02	14.40	0.5613	0.1000	0.0249	1.9483	90.12	91.00
7	16.5	57.5	64.52	54.33	0.5828	0.7421	1.2983	0.6837	3.07	6.57	6.78	10.18	0.5744	0.1548	0.0348	1.9644	84.53	85.92
8	16.4	59.8	65.36	57.81	0.5732	0.7203	1.3177	0.6800	3.06	6.30	8.40	7.55	0.5838	0.1814	0.0377	1.9555	81.84	83.46
9	16.4	62.5	66.13	61.78	0.5643	0.6952	1.3368	0.6791	2.66	5.64	10.74	4.35	0.5855	0.2062	0.0385	1.9397	79.30	81.12
SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE	
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN	
1	588.2	1026.6	581.7	659.4	87.6	786.9	944.2	972.3	1035.5	685.0	-856.6	-185.4	37.20	53.38	2.170	5.233	0.0500	
2	622.3	1007.4	612.9	640.1	108.1	777.9	980.4	999.2	1066.1	677.3	-872.3	-221.3	39.36	52.57	1.068	4.385	0.1000	
3	631.5	989.5	620.6	626.8	116.8	765.6	1015.6	1026.1	1082.3	678.7	-898.9	-260.4	39.84	52.06	0.124	3.611	0.1499	
4	643.0	957.4	628.0	603.4	138.1	743.3	1117.2	1106.8	1163.2	704.4	-979.0	-363.5	40.20	51.70	-2.426	1.361	0.3000	
5	647.3	928.3	625.7	561.5	165.7	739.2	1244.0	1214.3	1246.7	735.5	-1078.3	-475.1	39.99	49.65	-5.436	-1.667	0.5000	
6	641.8	902.6	615.8	523.4	180.8	735.4	1362.2	1321.9	1332.2	786.0	-1181.3	-586.5	39.43	47.46	-8.028	-4.745	0.7000	
7	629.8	879.5	604.0	470.7	178.4	742.9	1444.6	1402.5	1402.9	810.3	-1266.2	-659.6	38.72	42.97	-9.530	-6.893	0.8500	
8	620.0	858.3	594.7	430.1	175.2	742.7	1470.7	1429.4	1425.4	810.3	-1295.4	-686.7	38.09	39.20	-9.757	-7.415	0.9000	
9	611.0	832.6	586.2	383.4	172.2	739.0	1495.6	1456.3	1447.4	813.3	-1323.4	-717.3	37.51	34.90	-9.620	-7.716	0.9500	
	WC1/A1	WC1/A1							T02/T01	P02/P01	EFF-AD	EFF-P						
	LBM/SEC	KG/SEC									ROTOR	ROTOR						
	SOFT	SQM									%	%						
	39.06	190.63							1.2288	1.9245	89.83	90.71						

# AIRFOIL AERODYNAMIC SUMMARY PRINT

105 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 104 SPEED CODE 5 POINT NO 4

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	324.6	212.4	226.5	205.3	232.5	54.7	284.87	312.16	0.1380	0.1484
2	320.9	211.3	223.0	202.4	230.7	60.4	283.08	309.65	0.1272	0.1327
3	317.2	213.3	220.7	203.6	227.9	63.5	282.23	313.36	0.1161	0.1176
4	311.5	217.9	217.1	204.8	223.4	74.4	283.85	319.42	0.0808	0.0761
5	305.9	221.0	207.3	204.2	224.9	84.4	278.11	321.60	0.0313	0.0251
6	299.6	221.4	196.3	202.6	226.3	89.2	269.71	320.22	-0.0202	-0.0259
7	293.4	219.9	181.4	201.3	230.6	88.5	251.21	315.62	-0.0609	-0.0673
8	287.6	214.1	170.9	197.9	231.3	81.7	236.38	308.10	-0.0758	-0.0830
9	280.4	200.9	158.9	188.3	231.0	70.2	219.69	290.13	-0.0916	-0.1000

SL	R-1	B-2	M-1	M-2	INCS	INCM	DEV	TURN	D-FAC	OMEGA-B	LOSS-P	PO2/	PO/PO	TO/TO	%EFF-A	%EFF-P
	DEGREE	DEGREE			DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	STAGE	STAGE	TOT-STG	TOT-STG
1	45.6	14.9	0.9368	0.5847	-4.56	-1.90	23.02	30.76	0.5352	0.1108	0.0384	0.9521	1.8481	1.2186	87.69	88.70
2	45.9	16.6	0.9257	0.5821	-2.74	0.24	22.48	29.30	0.5295	0.1037	0.0364	0.9559	1.8128	1.2152	86.04	87.15
3	45.8	17.3	0.9141	0.5885	-2.11	1.17	21.45	28.56	0.5155	0.0798	0.0285	0.9667	1.8206	1.2140	87.21	88.24
4	45.8	19.9	0.8947	0.6020	-2.38	1.74	20.20	25.84	0.4859	0.0491	0.0183	0.9801	1.8536	1.2146	89.81	90.65
5	47.3	22.4	0.8729	0.6092	-4.46	0.59	17.87	24.87	0.4714	0.0388	0.0153	0.9848	1.8886	1.2217	89.79	90.66
6	49.1	23.8	0.8483	0.6075	-9.12	-3.30	15.65	25.30	0.4707	0.0475	0.0199	0.9821	1.9117	1.2320	87.61	88.68
7	51.8	23.7	0.8213	0.5986	-13.95	-7.68	16.00	28.06	0.4846	0.0556	0.0243	0.9801	1.9246	1.2502	82.15	83.70
8	53.5	22.4	0.8006	0.5801	-15.32	-8.94	15.52	31.09	0.5122	0.0648	0.0291	0.9776	1.9133	1.2568	79.24	81.03
9	55.5	20.4	0.7764	0.5411	-16.39	-9.92	14.56	35.01	0.5707	0.1047	0.0483	0.9655	1.8742	1.2621	74.93	77.02

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	PCT TE	EPSI-1	EPSI-2
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	SPAN	DEGREE	DEGREE
1	1065.0	696.9	743.3	673.5	762.8	179.4	58.34	63.93	0.0550	7.906	8.505
2	1052.8	693.1	731.7	664.2	756.9	198.2	57.98	63.42	0.1083	7.289	7.603
3	1040.9	699.9	724.2	668.1	747.6	208.3	57.80	64.18	0.1610	6.655	6.740
4	1022.1	715.1	712.4	672.1	733.0	244.2	58.13	65.42	0.3151	4.629	4.361
5	1003.5	725.1	680.2	670.1	737.8	277.0	56.96	65.87	0.5165	1.792	1.436
6	983.0	726.3	644.1	664.7	742.6	292.6	55.24	65.58	0.7145	-1.156	-1.482
7	962.7	721.6	595.3	660.5	756.6	290.4	51.45	64.64	0.8603	-3.489	-3.858
8	943.5	702.5	560.6	649.3	758.9	268.2	48.41	63.10	0.9080	-4.343	-4.757
9	919.9	659.3	521.5	617.8	757.8	230.3	44.99	59.42	0.9548	-5.247	-5.732
	NCORR	WCORR	WCORR	WCORR			TO/TO	PO2/PO1	PO/PO	EFF-AD	EFF-P
	INLET	INLET	INLET	INLET			STAGE	STAGE	STAGE	STAGE	STAGE
	RPM	LBM/SEC	KG/SEC						%	%	
	12798.60	101.32	45.95				1.2288	0.9761	1.8785	86.20	87.36

## AIRFOIL AERODYNAMIC SUMMARY PRINT

105 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 5 POINT NO 5

SL	V-1	V-2	VM-1	VM-2	WO-1	WO-2	U-1	U-2	V'-1	V'-2	WO'-1	WO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	174.3	312.8	171.9	196.7	28.4	243.2	287.8	296.3	311.2	203.8	-259.4	-53.1	177.93	255.85	0.0376	0.0918
2	184.5	306.9	181.6	192.8	32.6	238.8	298.8	304.5	322.2	203.7	-266.2	-65.8	188.69	254.40	0.0180	0.0774
3	187.2	301.6	183.8	189.0	35.3	235.1	309.6	312.7	330.1	204.3	-274.2	-77.7	190.92	252.30	0.0010	0.0643
4	190.5	292.9	185.7	181.5	42.2	229.9	340.5	337.3	351.4	211.0	-298.2	-107.5	192.42	250.22	-0.0452	0.0257
5	191.6	286.7	185.2	171.2	49.1	229.9	379.1	370.1	378.5	221.3	-330.0	-140.2	191.68	243.66	-0.1008	-0.0280
6	189.5	279.7	181.9	156.5	53.2	231.8	415.2	402.9	405.1	231.9	-361.9	-171.1	188.69	227.78	-0.1505	-0.0854
7	185.4	274.0	176.9	134.9	55.5	238.5	440.3	427.5	423.5	232.1	-384.8	-189.0	183.91	197.64	-0.1764	-0.1241
8	182.3	267.5	174.0	121.0	54.5	238.6	448.2	435.7	430.4	231.2	-393.7	-197.1	180.74	177.12	-0.1789	-0.1324
9	179.5	260.7	171.4	106.9	53.6	237.7	455.8	443.9	437.2	232.2	-402.2	-206.1	177.86	156.53	-0.1733	-0.1364

SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PO2/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	9.4	51.1	56.40	15.13	0.5260	0.8964	0.9393	0.5839	-0.82	5.45	12.61	41.27	0.5576	0.0751	0.0219	1.9458	94.92	95.37
2	10.2	51.1	55.67	18.06	0.5587	0.8782	0.9759	0.5829	0.29	6.42	11.41	36.81	0.5675	0.0999	0.0291	1.9020	92.71	93.33
3	10.9	51.3	56.15	22.37	0.5674	0.8613	1.0007	0.5834	1.39	7.38	11.55	33.78	0.5726	0.1005	0.0292	1.8907	92.32	92.97
4	12.8	51.7	58.10	30.62	0.5781	0.8322	1.0663	0.5994	3.25	8.92	10.57	27.48	0.5754	0.0858	0.0245	1.9072	92.81	93.43
5	14.9	53.2	60.72	39.20	0.5817	0.8079	1.1490	0.6236	3.75	8.64	8.05	21.51	0.5810	0.0919	0.0251	1.9512	91.67	92.41
6	16.3	55.8	63.36	47.38	0.5749	0.7801	1.2288	0.6469	4.04	8.29	6.33	15.97	0.5882	0.1247	0.0314	1.9850	88.09	89.18
7	17.5	60.4	65.36	54.34	0.5618	0.7551	1.2829	0.6397	3.92	7.42	6.79	11.02	0.6156	0.1829	0.0411	2.0118	82.56	84.18
8	17.4	63.0	66.21	58.33	0.5518	0.7331	1.3026	0.6337	3.91	7.15	8.92	7.88	0.6266	0.2110	0.0432	2.0023	79.87	81.72
9	17.4	65.7	66.96	62.49	0.5428	0.7107	1.3219	0.6331	3.49	6.48	11.46	4.47	0.6320	0.2350	0.0428	1.9903	77.58	79.62

SL	V-1	V-2	VM-1	VM-2	WO-1	WO-2	U-1	U-2	V'-1	V'-2	WO'-1	WO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN
1	571.8	1026.3	564.2	645.4	93.2	798.0	944.2	972.3	1021.0	668.5	-851.0	-174.3	36.44	52.40	2.157	5.261	0.0500
2	605.3	1006.9	595.8	632.6	107.0	783.5	980.4	999.2	1057.3	668.4	-873.4	-215.8	38.65	52.10	1.032	4.437	0.1000
3	614.2	989.6	603.2	620.0	115.9	771.3	1015.6	1026.1	1083.2	670.3	-899.7	-254.8	39.10	51.67	0.055	3.684	0.1499
4	625.0	961.0	609.4	595.6	138.6	754.2	1117.2	1106.8	1152.8	692.1	-978.6	-352.6	39.41	51.25	-2.591	1.475	0.3000
5	628.7	940.5	607.7	561.6	161.1	754.4	1244.0	1214.3	1241.7	725.9	-1082.8	-459.9	39.26	49.90	-5.775	-1.607	0.5000
6	621.8	917.5	596.8	513.5	174.6	760.4	1362.1	1321.9	1329.0	760.9	-1187.5	-561.5	38.65	46.65	-8.622	-4.896	0.7000
7	608.4	899.0	580.5	442.5	182.2	782.6	1444.6	1402.5	1389.5	761.7	-1262.4	-620.0	37.67	40.48	-10.108	-7.109	0.8500
8	598.3	877.8	570.9	397.0	178.9	782.9	1470.7	1429.4	1412.2	758.7	-1291.7	-646.6	37.02	36.28	-10.250	-7.588	0.9000
9	589.1	855.3	562.2	350.8	175.8	780.0	1495.6	1456.3	1434.5	761.9	-1319.8	-676.3	36.43	32.06	-9.930	-7.817	0.9500

WCI/AI	WCI/AI	T02/T01	P02/P01	EFF-AD	EFF-P
LBM/SEC	KG/SEC			ROTOR	ROTOR
SQFT	SQM			%	%
38.22	186.49	1.2368	1.9522	88.85	89.84

# AIRFOIL AERODYNAMIC SUMMARY PRINT

105 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 104 SPEED CODE 5 POINT NO 5

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	322.3	198.2	219.7	192.0	235.8	49.0	278.77	300.51	0.1385	0.1487
2	318.4	196.4	217.8	188.8	232.3	54.3	278.93	296.89	0.1285	0.1334
3	314.9	197.1	215.6	189.1	229.5	55.3	278.36	298.84	0.1186	0.1190
4	310.2	202.9	211.8	191.7	226.6	66.5	279.82	306.45	0.0867	0.0798
5	307.2	209.7	204.5	195.0	229.3	77.2	277.08	314.42	0.0403	0.0314
6	301.9	213.7	191.6	195.1	233.3	87.2	265.98	315.73	-0.0091	-0.0172
7	297.4	215.1	172.0	196.3	242.6	87.9	239.90	314.94	-0.0531	-0.0603
8	291.5	210.5	160.1	193.7	243.6	82.6	223.08	308.68	-0.0700	-0.0776
9	285.0	199.9	147.7	186.0	243.8	73.1	205.72	293.65	-0.0884	-0.0970

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	%EFF-A TOT-STG	%EFF-P TOT-STG
1	46.9	14.3	0.9282	0.5426	-3.29	-0.62	22.42	32.64	0.5861	0.1023	0.0355	0.9564	1.8599	1.2205	87.93	88.93
2	46.8	16.0	0.9166	0.5384	-1.85	1.13	21.93	30.74	0.5814	0.0990	0.0348	0.9585	1.8231	1.2173	86.06	87.18
3	46.7	16.3	0.9053	0.5405	-1.22	2.06	20.45	30.45	0.5752	0.0852	0.0306	0.9649	1.8244	1.2161	86.69	87.76
4	46.9	19.1	0.8888	0.5570	-1.25	2.86	19.38	27.79	0.5460	0.0615	0.0231	0.9753	1.8588	1.2179	88.86	89.78
5	48.3	21.6	0.8744	0.5743	-3.50	1.54	17.01	26.68	0.5256	0.0535	0.0213	0.9790	1.9064	1.2283	88.62	89.60
6	50.6	24.1	0.8509	0.5824	-7.59	-1.77	15.97	26.51	0.5110	0.0460	0.0192	0.9826	1.9454	1.2424	86.32	87.53
7	54.6	24.1	0.8282	0.5810	-11.11	-4.84	16.37	30.53	0.5274	0.0545	0.0238	0.9801	1.9708	1.2643	80.86	82.58
8	56.7	23.1	0.8071	0.5661	-12.19	-5.81	16.16	33.57	0.5504	0.0580	0.0259	0.9796	1.9651	1.2721	78.17	80.12
9	58.8	21.5	0.7849	0.5342	-13.08	-6.60	15.57	37.32	0.5989	0.0840	0.0385	0.9718	1.9361	1.2790	74.37	76.61

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	1057.4	650.2	720.9	630.0	773.6	160.7	57.09	61.55	0.0550	7.933	8.517
2	1044.7	644.5	714.4	619.4	762.3	170.3	57.13	60.81	0.1083	7.363	7.641
3	1033.1	646.6	707.4	620.6	753.0	181.5	57.01	61.21	0.1610	6.797	6.819
4	1017.7	665.8	695.9	629.0	743.4	218.3	57.31	62.76	0.3151	4.968	4.569
5	1007.9	688.0	670.9	639.7	752.2	253.3	56.75	64.40	0.5165	2.309	1.800
6	990.5	701.2	628.7	640.1	765.4	286.1	54.29	64.66	0.7145	-0.523	-0.985
7	975.8	705.6	564.5	644.0	795.9	288.3	49.13	64.50	0.8603	-3.042	-3.453
8	956.4	690.7	525.3	635.4	799.2	270.9	45.69	63.22	0.9080	-4.013	-4.444
9	935.2	655.7	484.6	610.3	799.8	239.8	42.13	60.14	0.9518	-5.068	-5.555
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1	PO/PO STAGE	EFF-AD STAGE %	EFF-P STAGE %
	12798.50	99.13	44.95				1.2368	0.9751	1.9036	85.19	86.46

## 105 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

## AIRFOIL AERODYNAMIC SUMMARY PRINT

RUN NO 104 SPEED CODE 5 POINT NO 7

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	U-1 M/SEC	U-2 M/SEC	V'-1 M/SEC	V'-2 M/SEC	VO'-1 M/SEC	VO'-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	168.0	313.8	166.0	198.6	26.3	243.0	287.8	296.3	309.7	205.7	-261.5	-53.3	173.99	257.79	0.0363	0.0918
2	177.8	308.4	175.0	193.8	31.4	239.8	298.8	304.5	319.6	204.4	-267.4	-64.7	184.17	255.24	0.0155	0.0774
3	180.3	303.7	177.0	190.6	34.3	236.5	309.6	312.7	327.2	205.3	-275.2	-76.3	186.13	254.08	-0.0029	0.0643
4	183.2	297.0	178.6	183.5	40.8	233.6	340.5	337.3	348.9	210.8	-299.7	-103.8	187.47	252.22	-0.0534	0.0248
5	183.5	293.1	176.9	170.4	48.5	238.5	379.1	370.1	375.0	215.3	-330.6	-131.7	185.76	241.31	-0.1153	-0.0321
6	180.3	286.4	172.2	149.5	53.3	244.2	415.2	402.9	400.8	218.0	-361.9	-158.7	181.57	215.80	-0.1687	-0.0934
7	175.4	278.5	167.4	122.6	52.6	250.0	440.3	427.5	422.3	215.7	-387.7	-177.4	176.95	177.45	-0.1933	-0.1316
8	172.1	273.3	164.2	108.8	51.6	250.7	448.2	435.7	429.3	214.6	-396.7	-185.0	173.55	157.54	-0.1933	-0.1380
9	169.3	267.1	161.5	94.4	50.6	249.8	455.8	443.9	436.2	215.8	-405.2	-194.0	170.58	136.84	-0.1828	-0.1395

SL	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	M-1	M-2	M'-1	M'-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	XEFF-A TOTAL	XEFF-P TOTAL
1	9.0	50.8	57.54	15.05	0.5062	0.8992	0.9331	0.5892	0.31	6.59	12.53	42.49	0.5513	0.0921	0.0268	1.9414	93.83	94.38
2	10.2	51.1	56.76	18.50	0.5373	0.8822	0.9657	0.5847	1.38	7.51	11.04	38.26	0.5642	0.1119	0.0327	1.9037	91.97	92.66
3	11.0	51.2	57.25	21.84	0.5452	0.8674	0.9896	0.5863	2.49	8.47	11.01	35.41	0.5684	0.1077	0.0314	1.8976	91.91	92.61
4	12.9	51.8	59.23	29.49	0.5545	0.8435	1.0561	0.5987	4.38	10.06	9.44	29.75	0.5782	0.0976	0.0282	1.9246	91.98	92.68
5	15.4	54.4	61.90	37.59	0.5554	0.8244	1.1352	0.6057	4.94	9.82	6.44	24.32	0.6021	0.1158	0.0324	1.9809	89.81	90.74
6	17.3	58.4	64.65	46.54	0.5452	0.7951	1.2120	0.6053	5.34	9.59	5.49	18.11	0.6314	0.1699	0.0435	2.0162	84.42	85.87
7	17.5	63.8	66.77	55.25	0.5298	0.7616	1.2750	0.5899	5.33	8.83	7.70	11.52	0.6674	0.2441	0.0537	2.0319	77.62	79.72
8	17.5	66.4	67.62	59.43	0.5192	0.7433	1.2949	0.5839	5.32	8.56	10.02	8.18	0.6780	0.2699	0.0536	2.0296	75.35	77.66
9	17.5	69.2	68.34	63.97	0.5101	0.7229	1.3145	0.5841	4.86	7.85	12.94	4.37	0.6825	0.2926	0.0507	2.0197	73.35	75.83

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	EPSI-1 DEGREE	EPSI-2 DEGREE	PCT TE SPAN
1	551.3	1029.7	544.6	651.7	86.2	797.3	944.2	972.3	1016.2	674.7	-858.0	-175.0	35.63	52.80	2.082	5.258	0.0500
2	583.4	1011.7	574.2	636.0	103.1	786.8	980.4	999.2	1048.5	670.5	-877.3	-212.4	37.72	52.27	0.887	4.435	0.1000
3	591.4	996.6	580.6	625.4	112.6	775.9	1015.6	1026.1	1073.6	673.6	-903.0	-250.2	38.12	52.04	-0.165	3.682	0.1499
4	601.0	974.5	585.9	602.1	133.9	766.3	1117.2	1106.8	1144.6	691.7	-983.3	-340.5	38.40	51.66	-3.060	1.420	0.3000
5	601.9	961.6	580.5	559.0	159.2	782.4	1244.0	1214.3	1230.3	706.5	-1084.8	-432.0	38.05	49.42	-6.605	-1.841	0.5000
6	591.5	939.6	565.1	490.6	174.9	801.3	1362.2	1321.9	1314.9	715.4	-1187.3	-520.6	37.19	44.20	-9.657	-5.353	0.7000
7	575.6	913.6	549.2	402.1	172.6	820.3	1444.6	1402.5	1385.5	707.6	-1272.0	-582.2	36.24	36.34	-11.075	-7.541	0.8500
8	564.8	896.6	538.8	357.1	169.2	822.4	1470.7	1429.4	1408.6	704.2	-1301.4	-607.0	35.54	32.27	-11.073	-7.908	0.9000
9	555.4	876.3	530.0	309.8	166.1	819.7	1495.6	1456.3	1431.2	708.0	-1329.4	-636.6	34.94	28.03	-10.471	-7.991	0.9500

WC1/A1 LBM/SEC SQFT	WC1/A1 KG/SEC SQM	T02/T01	P02/P01	EFF-AD ROTOR %	EFF-P ROTOR %
36.98	180.45	1.2470	1.9719	86.60	87.63

# AIRFOIL AERODYNAMIC SUMMARY PRINT

105 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 104 SPEED CODE 5 POINT NO 7

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	321.6	185.7	219.0	180.4	235.5	43.9	278.51	288.12	0.1402	0.1500
2	318.0	183.5	216.2	177.6	233.3	46.1	277.62	284.80	0.1318	0.1360
3	315.0	184.0	214.4	177.2	230.7	49.4	277.72	285.34	0.1236	0.1229
4	311.9	191.0	210.9	181.8	229.8	58.7	279.23	295.60	0.0964	0.0675
5	310.8	199.4	201.0	184.7	237.1	75.1	272.67	302.19	0.0549	0.0436
6	305.7	206.2	182.7	186.6	245.1	87.8	252.35	306.09	0.0056	-0.0036
7	299.0	208.9	158.1	189.7	253.7	87.4	219.29	307.85	-0.0430	-0.0495
8	294.6	206.7	146.6	188.4	255.5	84.9	203.33	303.75	-0.0627	-0.0693
9	288.6	198.9	132.9	182.3	256.2	79.6	184.27	291.23	-0.0843	-0.0921

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCH DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	XEFF-A TOT-STG	XEFF-P TOT-STG
1	47.0	13.7	0.9252	0.5063	-3.21	-0.55	21.78	33.34	0.6296	0.0982	0.0342	0.9583	1.8613	1.2223	87.31	88.36
2	47.1	14.5	0.9144	0.5007	-1.51	1.47	20.44	32.57	0.6323	0.0995	0.0353	0.9584	1.8251	1.2195	85.37	86.55
3	47.0	15.5	0.9047	0.5022	-0.89	2.38	19.73	31.50	0.6253	0.0909	0.0328	0.9625	1.8261	1.2183	85.95	87.08
4	47.5	17.9	0.8922	0.5216	-0.70	3.42	18.14	29.58	0.5991	0.0738	0.0279	0.9701	1.8622	1.2223	87.40	88.44
5	49.7	22.1	0.8822	0.5424	-2.05	3.00	17.54	27.61	0.5748	0.0740	0.0293	0.9705	1.9141	1.2367	86.04	87.25
6	53.3	25.2	0.8571	0.5577	-4.89	0.93	17.07	28.11	0.5560	0.0580	0.0240	0.9777	1.9649	1.2551	83.37	84.87
7	58.0	24.7	0.8256	0.5590	-7.71	-1.45	16.98	33.32	0.5674	0.0429	0.0187	0.9843	1.9965	1.2821	77.32	79.39
8	60.1	24.2	0.8089	0.5505	-8.73	-2.35	17.32	35.87	0.5828	0.0450	0.0199	0.9840	2.0006	1.2922	74.90	77.20
9	62.6	23.6	0.7879	0.5268	-9.29	-2.81	17.70	38.97	0.6173	0.0564	0.0254	0.9809	1.9839	1.3016	71.59	74.16

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	1055.2	609.3	718.5	592.0	772.8	144.0	57.04	59.01	0.0550	8.032	8.596
2	1043.5	602.2	709.2	582.8	765.4	151.4	56.86	58.33	0.1083	7.554	7.791
3	1033.5	603.6	703.5	581.5	757.1	162.1	56.88	58.44	0.1610	7.081	7.043
4	1023.2	626.8	691.8	596.5	753.9	192.5	57.19	60.54	0.3151	5.524	5.013
5	1019.9	654.2	659.6	606.1	777.9	246.3	55.85	61.89	0.5165	3.148	2.496
6	1003.1	676.5	599.4	612.2	804.3	288.0	51.68	62.69	0.7145	0.323	-0.205
7	980.9	685.3	518.8	622.4	832.4	286.8	44.91	63.05	0.8603	-2.466	-2.838
8	966.5	678.0	481.0	618.1	838.3	278.7	41.64	62.21	0.9080	-3.591	-3.968
9	946.8	652.7	435.9	598.2	840.5	261.3	37.74	59.65	0.9548	-4.833	-5.278
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1	PO/PO STAGE	EFF-AD %	EFF-P %
	12798.60	95.92	43.50				1.2470	0.9729	1.9185	82.76	84.26

## AIRFOIL AERODYNAMIC SUMMARY PRINT

105 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 5 POINT NO 8

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	165.0	316.7	162.9	204.1	26.7	242.2	287.8	296.4	307.7	211.1	-261.0	-54.2	171.88	262.39	0.0347	0.0912
2	174.4	311.0	171.4	198.7	32.1	239.2	298.8	304.6	317.1	209.2	-266.7	-65.3	181.61	259.10	0.0124	0.0766
3	176.5	306.4	172.8	194.5	35.6	236.7	309.6	312.7	323.9	208.9	-274.0	-76.1	182.99	256.63	-0.0073	0.0631
4	178.8	299.9	173.6	185.3	42.5	235.7	340.5	337.3	344.9	211.4	-298.0	-101.6	183.63	251.59	-0.0617	0.0227
5	178.4	296.7	171.0	169.3	50.7	243.7	379.2	370.1	370.3	211.3	-328.5	-126.4	181.14	236.22	-0.1278	-0.0362
6	174.4	291.5	165.4	144.9	55.2	253.0	415.2	402.9	396.2	208.5	-360.0	-149.9	176.10	205.27	-0.1827	-0.0999
7	169.0	284.9	160.1	117.3	54.1	259.6	440.3	427.5	418.1	204.8	-386.2	-167.9	171.02	166.95	-0.2052	-0.1375
8	165.6	279.4	156.9	101.4	53.0	260.4	448.3	435.7	425.2	202.6	-395.2	-175.3	167.50	144.36	-0.2039	-0.1424
9	162.6	273.5	154.1	87.1	52.0	259.2	455.8	443.9	432.2	204.1	-403.8	-184.7	164.45	124.15	-0.1896	-0.1417

SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PO2/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	9.3	49.9	57.98	14.88	0.4967	0.9094	0.9260	0.6062	0.76	7.03	12.36	43.10	0.5294	0.0955	0.0278	1.9304	93.61	94.17
2	10.6	50.3	57.24	18.23	0.5265	0.8916	0.9571	0.5998	1.86	7.98	10.78	39.01	0.5444	0.1136	0.0332	1.8935	91.85	92.55
3	11.6	50.6	57.74	21.39	0.5330	0.8767	0.9784	0.5977	2.99	8.97	10.57	36.35	0.5523	0.1098	0.0321	1.8878	91.77	92.47
4	13.8	51.8	59.81	28.73	0.5404	0.8528	1.0425	0.6011	4.95	10.63	8.68	31.08	0.5727	0.1074	0.0312	1.9134	91.20	91.96
5	16.6	55.1	62.59	36.65	0.5391	0.8351	1.1193	0.5947	5.62	10.51	5.50	25.94	0.6114	0.1377	0.0390	1.9707	87.98	89.06
6	18.6	60.1	65.47	45.85	0.5264	0.8079	1.1959	0.5777	6.16	10.41	4.79	19.62	0.6586	0.2076	0.0538	2.0128	81.32	83.05
7	18.8	65.6	67.64	54.96	0.5094	0.7773	1.2598	0.5589	6.20	9.70	7.41	12.68	0.6978	0.2803	0.0621	2.0386	74.95	77.30
8	18.8	68.6	68.49	59.86	0.4985	0.7580	1.2800	0.5495	6.19	9.43	10.45	8.63	0.7107	0.3077	0.0603	2.0351	72.65	75.22
9	18.7	71.4	69.20	64.69	0.4892	0.7383	1.3000	0.5511	5.73	8.72	13.66	4.52	0.7138	0.3293	0.0556	2.0256	70.85	73.56

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN
1	541.5	1039.1	534.3	669.5	87.8	794.6	944.3	972.3	1009.5	692.7	-856.5	-177.7	35.20	53.74	1.991	5.228	0.0500
2	572.3	1020.4	562.5	652.0	105.3	784.9	980.4	999.3	1040.4	686.4	-875.2	-214.4	37.20	53.07	0.711	4.387	0.1000
3	579.0	1005.2	567.0	638.3	116.8	776.5	1015.7	1026.1	1062.8	685.4	-898.9	-249.6	37.48	52.56	-0.420	3.618	0.1499
4	586.6	983.9	569.7	608.1	139.5	773.4	1117.2	1106.8	1131.6	693.5	-977.7	-333.4	37.61	51.53	-3.538	1.302	0.3000
5	585.3	973.6	561.1	555.5	166.3	799.6	1244.0	1214.4	1215.1	693.3	-1077.8	-414.8	37.10	48.38	-7.321	-2.073	0.5000
6	572.2	956.5	542.8	475.3	181.0	830.0	1362.2	1321.9	1299.9	684.0	-1181.2	-491.9	36.07	42.04	-10.470	-5.723	0.7000
7	554.6	934.6	525.4	384.9	177.6	851.7	1444.6	1402.6	1371.7	672.1	-1267.1	-550.9	35.03	34.19	-11.756	-7.878	0.8500
8	543.3	916.8	514.7	332.8	174.0	854.3	1470.7	1429.5	1395.1	664.6	-1296.7	-575.2	34.31	29.57	-11.682	-8.156	0.9000
9	533.6	897.2	505.6	285.6	170.7	850.5	1495.6	1456.4	1418.1	669.8	-1324.9	-605.8	33.68	25.43	-10.865	-8.120	0.9500

	WC1/A1	WC1/A1																
	LBM/SEC	KG/SEC																
	SOFT	SQM																
	36.03	175.82																

	T02/T01	P02/P01	EFF-AD	EFF-P
			ROTOR	ROTOR
			X	X
	1.2498	1.9640	85.05	86.39

# AIRFOIL AERODYNAMIC SUMMARY PRINT

105 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 104 SPEED CODE 5 POINT NO 8

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	324.0	181.7	223.4	176.9	234.7	41.5	281.72	283.46	0.1416	0.1515
2	320.2	179.2	220.0	173.9	232.6	43.3	280.04	279.62	0.1348	0.1389
3	316.9	178.8	217.2	172.9	230.8	45.7	278.83	279.16	0.1280	0.1271
4	313.6	184.8	211.5	176.5	231.5	54.6	277.23	287.50	0.1045	0.0951
5	312.9	192.3	198.8	178.0	241.6	72.6	266.51	291.19	0.0668	0.0547
6	309.1	200.6	177.2	181.2	253.3	86.1	241.13	296.59	0.0174	0.0088
7	303.6	205.5	151.7	186.1	263.0	87.1	207.41	300.98	-0.0352	-0.0397
8	299.4	205.0	139.0	186.4	265.1	85.3	190.03	299.49	-0.0570	-0.0614
9	293.5	199.0	124.4	181.5	265.8	81.6	170.23	288.99	-0.0813	-0.0874

SL	B-1	B-2	M-1	M-2	INCS	INCM	DEV	TURN	D-FAC	OMEGA-B	LOSS-P	PO2/	PO/PO	TO/TO	%EFF-A	%EFF-P
	DEGREE	DEGREE			DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	STAGE	STAGE	TOT-STG	TOT-STG
1	46.3	13.2	0.9340	0.4953	-3.88	-1.21	21.32	33.14	0.6464	0.0980	0.0342	0.9578	1.8513	1.2209	87.05	88.12
2	46.5	14.0	0.9222	0.4885	-2.08	0.90	19.88	32.57	0.6509	0.0984	0.0350	0.9583	1.8159	1.2180	85.20	86.38
3	46.7	14.8	0.9119	0.4878	-1.25	2.03	18.96	31.92	0.6480	0.0907	0.0328	0.9622	1.8154	1.2165	85.74	86.88
4	47.6	17.2	0.8981	0.5039	-0.54	3.57	17.45	30.42	0.6269	0.0748	0.0284	0.9694	1.8472	1.2209	86.71	87.80
5	50.6	22.2	0.8860	0.5218	-1.18	3.86	17.61	28.40	0.6069	0.0810	0.0320	0.9674	1.8940	1.2371	84.37	85.70
6	55.0	25.4	0.8646	0.5407	-3.16	2.66	17.28	29.63	0.5891	0.0653	0.0269	0.9745	1.9498	1.2598	80.82	82.52
7	60.0	25.1	0.8362	0.5476	-5.75	0.51	17.32	34.93	0.5977	0.0528	0.0229	0.9803	1.9899	1.2907	74.65	76.96
8	62.3	24.6	0.8195	0.5435	-6.55	-0.17	17.63	37.74	0.6091	0.0521	0.0230	0.9810	2.0009	1.3021	72.44	74.97
9	64.9	24.2	0.7989	0.5246	-6.96	-0.48	18.32	40.69	0.6365	0.0532	0.0239	0.9815	1.9918	1.3133	69.34	72.13

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	PCT TE	EPSI-1	EPSI-2
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	SPAN	DEGREE	DEGREE
1	1063.2	596.3	733.0	580.5	770.1	136.3	57.70	58.06	0.0550	8.116	8.580
2	1050.4	587.9	721.7	570.4	763.3	142.2	57.35	57.27	0.1033	7.724	7.957
3	1039.9	586.7	712.8	567.2	757.2	149.8	57.11	57.18	0.1610	7.333	7.285
4	1028.8	606.2	693.9	579.1	759.5	179.1	56.78	58.88	0.3151	5.987	5.449
5	1026.7	630.8	652.4	584.2	792.8	238.1	54.58	59.64	0.5165	3.830	3.134
6	1014.0	658.3	581.2	594.6	830.9	282.4	49.39	60.74	0.7145	0.994	0.502
7	996.2	674.3	497.7	610.7	863.0	285.8	42.48	61.64	0.8503	-2.019	-2.276
8	982.2	672.5	455.9	611.5	870.0	279.8	38.92	61.34	0.9080	-3.267	-3.516
9	962.9	653.0	408.2	595.5	872.1	267.9	34.86	59.19	0.9548	-4.661	-5.010
	NCORR	WCORR	WCORR				TO/TO	PO2/PO1	PO/PO	EFF-AD	EFF-P
	INLET	INLET	INLET				STAGE		STAGE	STAGE	STAGE
	RPM	LBM/SEC	KG/SEC							%	%
	12799.10	93.46	42.38				1.2498	0.9709	1.9069	80.98	82.61



## AIRFOIL AERODYNAMIC SUMMARY PRINT

105 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 106 SPEED CODE 5 POINT NO 1

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	183.2	314.9	181.7	202.6	22.9	241.1	288.0	296.6	321.5	210.1	-265.1	-55.5	184.25	262.87	0.0381	0.0911
2	193.3	309.7	191.4	199.3	27.4	237.1	299.1	304.8	332.3	210.4	-271.7	-67.7	194.75	262.23	0.0188	0.0759
3	196.9	304.4	194.5	195.4	30.4	233.4	309.8	313.0	340.5	211.0	-279.4	-79.6	197.90	260.20	0.0019	0.0618
4	201.5	293.7	197.9	187.9	37.9	225.8	340.8	337.6	361.8	218.7	-302.9	-111.8	200.81	258.04	-0.0428	0.0215
5	202.8	283.6	197.5	176.3	46.2	222.2	379.5	370.4	387.4	230.3	-333.3	-148.2	200.08	249.67	-0.0949	-0.0315
6	201.2	273.0	194.8	164.4	50.3	218.0	415.5	403.2	413.9	247.6	-365.2	-185.2	197.76	238.29	-0.1400	-0.0843
7	197.6	265.8	191.2	150.1	50.0	219.3	440.7	427.8	434.9	256.9	-390.6	-208.5	194.26	218.88	-0.1671	-0.1213
8	194.6	259.6	188.3	137.9	49.2	220.0	448.6	436.0	441.5	256.3	-399.4	-216.1	191.14	200.58	-0.1725	-0.1308
9	191.9	248.4	185.7	116.9	48.4	219.1	456.2	444.2	448.0	253.6	-407.8	-225.1	188.31	169.20	-0.1712	-0.1361

SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PO2/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	7.2	50.0	55.51	15.34	0.5545	0.9019	0.9731	0.6017	-1.71	4.56	12.82	40.17	0.5550	0.0701	0.0204	1.9673	95.10	95.54
2	8.1	50.0	54.81	18.78	0.5872	0.8859	1.0095	0.6019	-0.57	5.56	11.33	36.03	0.5635	0.0942	0.0275	1.9251	92.93	93.55
3	8.9	50.1	55.15	22.20	0.5988	0.8690	1.0355	0.6025	0.39	6.37	11.38	32.95	0.5685	0.0989	0.0288	1.9087	92.22	92.89
4	10.9	50.2	56.85	30.76	0.6139	0.8346	1.1023	0.6213	2.00	7.67	10.71	26.09	0.5662	0.0875	0.0249	1.9060	92.40	93.06
5	13.2	51.5	59.35	39.95	0.6183	0.8003	1.1810	0.6498	2.39	7.27	8.80	19.40	0.5626	0.0868	0.0235	1.9243	91.78	92.50
6	14.5	52.8	61.92	48.24	0.6131	0.7643	1.2609	0.6932	2.61	6.86	7.18	13.68	0.5489	0.1023	0.0254	1.9341	89.61	90.53
7	14.7	55.5	63.94	54.09	0.6012	0.7363	1.3231	0.7118	2.50	6.00	6.54	9.85	0.5564	0.1504	0.0340	1.9461	84.51	85.88
8	14.7	57.8	64.79	57.32	0.5914	0.7153	1.3418	0.7063	2.49	5.73	7.91	7.47	0.5674	0.1785	0.0376	1.9383	81.62	83.24
9	14.6	61.8	65.55	62.47	0.5826	0.6799	1.3603	0.6943	2.08	5.06	11.44	3.08	0.5815	0.2155	0.0393	1.9041	77.71	79.62

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN
1	601.0	1033.2	596.3	664.8	75.0	790.9	945.0	973.1	1054.7	689.3	-869.9	-182.2	37.74	53.84	2.185	5.222	0.0500
2	634.2	1016.2	627.8	653.8	89.8	778.0	981.2	1000.1	1090.3	690.5	-891.4	-222.0	39.89	53.71	1.676	4.347	0.1000
3	645.9	998.7	638.2	641.2	99.7	765.7	1016.5	1026.9	1117.0	692.4	-916.8	-261.2	40.53	53.29	0.109	3.539	0.1499
4	661.1	963.7	649.3	616.5	124.4	740.7	1118.1	1107.7	1187.0	717.5	-993.7	-367.0	41.13	52.85	-2.451	1.234	0.3000
5	665.5	930.6	648.0	578.3	151.5	729.1	1245.0	1215.3	1271.1	755.6	-1093.5	-486.2	40.98	51.14	-5.437	-1.807	0.5000
6	660.3	895.8	639.3	539.3	165.2	715.3	1363.3	1323.0	1358.0	812.5	-1198.1	-607.7	40.50	48.80	-8.019	-4.830	0.7000
7	648.3	872.0	627.2	492.5	164.2	719.6	1445.8	1403.7	1426.8	842.9	-1281.6	-684.1	39.79	44.83	-9.573	-6.949	0.8500
8	638.5	851.8	617.7	452.5	161.6	721.7	1471.9	1430.6	1448.6	841.1	-1310.3	-709.0	39.15	41.08	-9.882	-7.496	0.9000
9	629.5	814.9	609.1	383.4	158.9	719.0	1496.8	1457.5	1470.0	832.1	-1337.9	-738.5	38.57	34.65	-9.806	-7.795	0.9500
	WC1/A1		WC1/A1							T02/T01	P02/P01	EFF-AD		EFF-P			
	LBM/SEC		LBM/SEC									ROTOR		ROTOR			
	SQFT		SQM									%		%			
	40.04		195.37							1.2302	1.9252	89.33		90.25			

# AIRFOIL AERODYNAMIC SUMMARY PRINT

105 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 106 SPEED CODE 5 POINT NO 1

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	328.8	236.4	231.3	224.0	233.7	75.6	289.17	326.41	0.1364	0.1477
2	325.8	235.7	230.0	222.1	230.8	79.0	290.21	325.76	0.1243	0.1313
3	322.4	237.5	228.0	222.1	227.9	84.2	289.82	328.00	0.1121	0.1157
4	315.8	240.1	223.9	222.9	222.7	89.3	291.04	334.26	0.0741	0.0724
5	308.5	240.9	214.2	219.7	221.9	98.9	286.02	333.19	0.0225	0.0195
6	298.8	236.8	201.9	212.4	220.2	104.7	276.10	323.34	-0.0278	-0.0313
7	291.7	232.2	187.7	206.8	223.4	105.6	258.81	312.24	-0.0647	-0.0704
8	286.3	227.6	177.5	203.7	224.7	101.5	244.40	305.51	-0.0777	-0.0847
9	275.8	214.6	160.0	192.5	224.7	94.9	219.36	285.81	-0.0920	-0.1004

SL	B-1	B-2	M-1	M-2	INCS	INCM	DEV	TURN	D-FAC	OMEGA-B	LOSS-P	PO2/	PO/PO	TO/TO	%EFF-A	%EFF-P
	DEGREE	DEGREE			DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	STAGE	STAGE	TOT-STG	TOT-STG
1	45.2	18.6	0.9487	0.6544	-5.02	-2.35	26.75	26.58	0.4462	0.1225	0.0416	0.9462	1.8582	1.2239	86.45	87.57
2	45.0	19.5	0.9398	0.6533	-3.62	-0.64	25.45	25.45	0.4400	0.1154	0.0398	0.9500	1.8268	1.2211	84.91	86.12
3	44.9	20.7	0.9289	0.6590	-3.04	0.23	24.90	24.18	0.4236	0.0913	0.0319	0.9611	1.8334	1.2197	86.01	87.14
4	44.8	21.8	0.9072	0.6671	-3.35	0.76	22.05	23.01	0.4032	0.0603	0.0222	0.9751	1.8591	1.2189	88.50	89.46
5	46.0	24.2	0.8807	0.6681	-5.73	-0.73	19.65	21.76	0.3875	0.0486	0.0189	0.9807	1.8377	1.2240	88.79	89.74
6	47.5	26.3	0.8462	0.6536	-10.70	-4.88	18.14	21.23	0.3849	0.0590	0.0242	0.9779	1.8913	1.2312	86.31	87.47
7	50.0	27.1	0.8174	0.6355	-15.78	-9.52	19.33	22.89	0.4001	0.0808	0.0344	0.9713	1.8899	1.2471	80.65	82.29
8	51.7	26.5	0.7977	0.6199	-17.16	-10.78	19.57	25.19	0.4185	0.0865	0.0376	0.9703	1.8829	1.2540	77.95	79.80
9	54.5	26.2	0.7633	0.5809	-17.30	-10.83	20.35	28.30	0.4594	0.1056	0.0467	0.9661	1.8418	1.2594	73.42	75.58

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	PCT TE	EPSI-1	EPSI-2
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	SPAN	DEGREE	DEGREE
1	1078.9	775.6	758.9	734.9	766.9	248.0	59.22	66.85	0.0550	7.816	8.462
2	1069.0	773.5	754.7	728.7	757.1	259.3	59.44	66.72	0.1083	7.120	7.523
3	1057.8	779.3	748.1	728.6	747.8	276.3	59.36	67.18	0.1610	6.425	6.629
4	1036.2	787.8	734.6	731.3	730.8	292.9	59.61	68.46	0.3151	4.245	4.147
5	1012.1	790.5	702.9	720.8	728.2	324.6	58.58	68.24	0.5165	1.290	1.116
6	980.3	777.0	662.5	696.9	722.6	343.7	56.55	66.22	0.7145	-1.596	-1.796
7	957.1	762.0	615.7	678.6	732.8	346.6	53.01	63.95	0.8603	-3.710	-4.036
8	939.4	746.6	582.2	668.2	737.2	333.0	50.06	62.57	0.9080	-4.451	-4.851
9	905.0	704.2	524.8	631.7	737.3	311.3	44.93	58.54	0.9548	-5.271	-5.754
	NCORR	NCORR	NCORR				TO/TO	PO2/PO1	PO/PO	EFF-AD	EFF-P
	INLET	INLET	INLET				STAGE		STAGE	STAGE	STAGE
	RPM	LBM/SEC	KG/SEC							%	%
	12809.20	103.85	47.09				1.2302	0.9712	1.8697	84.98	86.23

## AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 10 POINT NO 1

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2		
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN		
1	171.9	301.1	170.6	196.9	21.5	227.8	274.0	282.2	304.7	204.2	-252.5	-54.4	176.84	254.00	0.0380	0.0906		
2	181.7	295.7	179.9	192.6	25.9	224.4	284.5	290.0	315.0	203.4	-258.6	-65.6	187.19	251.48	0.0186	0.0750		
3	185.1	290.3	182.8	189.7	28.5	219.8	294.8	297.8	323.0	205.1	-266.2	-78.0	190.21	250.37	0.0018	0.0606		
4	189.5	280.4	186.1	184.0	35.4	211.6	324.2	321.2	343.6	214.2	-288.8	-109.6	193.20	249.76	-0.0433	0.0195		
5	190.6	270.7	185.5	172.4	43.8	208.7	361.0	352.4	367.5	224.5	-317.3	-143.8	192.36	240.26	-0.0961	-0.0339		
6	188.9	261.1	182.6	161.2	48.4	205.4	395.3	383.6	392.0	240.3	-346.9	-178.3	189.67	229.15	-0.1412	-0.0862		
7	185.1	254.8	178.9	148.5	47.7	207.1	419.3	407.1	412.4	249.1	-371.6	-200.0	186.08	211.96	-0.1691	-0.1231		
8	182.1	247.5	176.0	134.9	46.8	207.5	426.8	414.9	418.8	247.3	-380.0	-207.3	182.88	191.77	-0.1751	-0.1326		
9	179.4	234.3	173.4	110.6	46.0	206.5	434.1	422.7	425.0	242.8	-388.1	-216.2	180.04	156.41	-0.1735	-0.1372		
SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	P02/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	P01	TOTAL	TOTAL
1	7.2	49.2	55.90	15.46	0.5185	0.8655	0.9191	0.5871	-1.32	4.95	12.94	40.44	0.5378	0.0543	0.0158	1.8598	96.17	96.49
2	8.2	49.4	55.15	18.84	0.5499	0.8487	0.9532	0.5839	-0.23	5.90	11.39	36.31	0.5508	0.0848	0.0247	1.8195	93.57	94.09
3	8.9	49.2	55.51	22.39	0.5605	0.8320	0.9783	0.5878	0.75	6.73	11.57	33.12	0.5522	0.0858	0.0249	1.8041	93.16	93.70
4	10.8	49.0	57.22	30.78	0.5747	0.8006	1.0423	0.6116	2.36	8.04	10.73	26.43	0.5452	0.0711	0.0202	1.8009	93.69	94.19
5	13.3	50.3	59.69	39.72	0.5785	0.7680	1.1154	0.6370	2.73	7.61	8.57	19.97	0.5444	0.0749	0.0203	1.8119	92.73	93.31
6	14.9	51.7	62.25	47.71	0.5728	0.7355	1.1889	0.6772	2.94	7.19	6.66	14.54	0.5325	0.0903	0.0226	1.8202	90.60	91.35
7	14.9	54.2	64.32	53.25	0.5608	0.7109	1.2492	0.6950	2.88	6.38	5.70	11.06	0.5423	0.1413	0.0326	1.8328	85.09	86.30
8	14.9	56.9	65.20	56.84	0.5510	0.6867	1.2673	0.6862	2.90	6.14	7.42	8.36	0.5564	0.1742	0.0372	1.8190	81.61	83.08
9	14.9	61.7	65.97	62.81	0.5423	0.6457	1.2850	0.6693	2.49	5.48	11.77	3.16	0.5750	0.2180	0.0393	1.7771	76.80	78.58
SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE	
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN	
1	564.1	987.8	559.6	645.9	70.6	747.4	899.1	925.9	999.8	670.1	-828.5	-178.5	36.22	52.02	2.176	5.193	0.0500	
2	596.3	970.1	590.2	631.8	85.0	736.2	933.6	951.5	1033.7	667.4	-848.6	-215.3	38.34	51.50	1.066	4.297	0.1000	
3	607.2	952.5	599.9	622.3	93.6	721.1	967.1	977.1	1059.7	672.9	-873.5	-256.0	38.96	51.28	0.103	3.473	0.1499	
4	621.6	920.0	610.6	603.7	116.2	694.2	1063.8	1053.9	1127.3	702.8	-947.6	-359.7	39.57	51.15	-2.481	1.118	0.3000	
5	625.4	888.1	608.7	565.7	143.6	684.6	1184.6	1156.3	1205.9	736.6	-1041.0	-471.7	39.40	49.21	-5.505	-1.944	0.5000	
6	619.7	856.5	599.0	528.8	158.9	673.8	1297.1	1258.7	1286.2	788.6	-1138.2	-584.9	38.85	46.93	-8.088	-4.937	0.7000	
7	607.5	836.0	587.0	487.2	156.4	679.4	1375.6	1335.5	1353.1	817.3	-1219.1	-656.2	38.11	43.41	-9.689	-7.054	0.8500	
8	597.4	812.0	577.3	442.5	153.5	680.9	1400.4	1361.2	1374.0	811.5	-1246.9	-680.3	37.45	39.28	-10.035	-7.599	0.9000	
9	588.5	768.6	568.9	363.0	150.9	677.5	1424.1	1386.7	1394.5	796.8	-1273.2	-709.3	36.87	32.04	-9.941	-7.861	0.9500	
	WC1/A1	WC1/A1							T02/T01	P02/P01	EFF-AD	EFF-P						
	LBM/SEC	KG/SEC									ROTOR	ROTOR						
	SOFT	SQM									%	%						
	38.38	187.29							1.2057	1.8141	90.15	90.93						

# AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 104 SPEED CODE 10 POINT NO 1

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	315.3	235.1	225.1	225.2	220.9	67.6	279.98	318.64	0.1360	0.1477
2	312.1	235.3	222.9	223.6	218.4	73.2	279.36	318.59	0.1234	0.1311
3	308.5	237.7	221.6	225.1	214.7	76.6	279.61	323.12	0.1105	0.1152
4	302.3	238.8	218.7	223.3	208.8	84.6	281.63	325.02	0.0708	0.0714
5	294.8	236.7	208.4	216.2	208.4	96.3	274.77	317.31	0.0196	0.0188
6	285.5	231.7	196.2	208.5	207.5	101.1	264.31	306.86	-0.0295	-0.0315
7	279.3	227.5	183.1	203.2	210.8	102.3	248.45	296.46	-0.0650	-0.0700
8	272.8	222.2	171.8	198.8	212.0	99.3	232.50	288.21	-0.0774	-0.0839
9	260.3	208.1	151.4	187.0	211.7	91.3	203.77	268.19	-0.0915	-0.0998

SL	B-1	B-2	M-1	M-2	INCS	INCM	DEV	TURN	D-FAC	OMEGA-B	LOSS-P	PO2/	PO/PO	TO/TO	XEFF-A	XEFF-P
	DEGREE	DEGREE			DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	STAGE	STAGE	TOT-STG	TOT-STG
1	44.4	16.7	0.9131	0.6571	-5.86	-3.19	24.80	27.68	0.4215	0.1162	0.0399	0.9516	1.7663	1.2014	87.60	88.55
2	44.3	18.1	0.9032	0.6585	-4.31	-1.33	23.98	26.22	0.4090	0.0991	0.0345	0.9593	1.7433	1.1989	86.48	87.49
3	44.0	18.8	0.8922	0.6665	-3.95	-0.67	22.94	25.23	0.3903	0.0674	0.0239	0.9728	1.7541	1.1969	88.44	89.31
4	43.6	20.7	0.8723	0.6701	-4.54	-0.43	20.97	22.90	0.3692	0.0433	0.0161	0.9831	1.7710	1.1954	90.77	91.48
5	45.0	24.0	0.8456	0.6625	-6.79	-1.75	19.41	20.99	0.3577	0.0446	0.0174	0.9834	1.7821	1.1997	89.84	90.63
6	46.6	25.9	0.8132	0.6456	-11.57	-5.75	17.74	20.76	0.3596	0.0627	0.0258	0.9779	1.7800	1.2059	86.92	87.94
7	49.0	26.7	0.7872	0.6286	-16.71	-10.45	19.00	22.29	0.3744	0.0880	0.0376	0.9704	1.7790	1.2213	80.79	82.27
8	51.0	26.5	0.7648	0.6113	-17.87	-11.49	19.61	24.45	0.3913	0.0921	0.0400	0.9703	1.7695	1.2276	77.75	79.45
9	54.4	26.0	0.7245	0.5687	-17.43	-10.95	20.15	28.39	0.4343	0.1024	0.0453	0.9697	1.7255	1.2321	72.61	74.61

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	PCT TE	EPSI-1	EPSI-2
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	SPAN	DEGREE	DEGREE
1	1034.6	771.3	738.5	738.8	724.6	221.7	57.34	65.26	0.0550	7.795	8.460
2	1023.5	772.1	731.4	733.8	716.5	240.2	57.22	65.25	0.1083	7.069	7.511
3	1012.3	780.0	727.1	738.4	704.3	251.5	57.27	66.18	0.1610	6.329	6.600
4	992.0	783.4	717.5	732.6	685.0	277.5	57.68	66.57	0.3151	4.057	4.090
5	967.1	776.7	683.8	709.5	683.9	316.0	56.28	64.99	0.5165	1.121	1.078
6	936.9	760.4	643.6	684.2	680.8	331.6	54.13	62.85	0.7145	-1.689	-1.804
7	916.2	746.5	600.7	666.7	691.8	335.8	50.88	60.72	0.8603	-3.724	-4.010
8	895.2	729.2	563.5	652.4	695.6	325.7	47.62	59.03	0.9080	-4.435	-4.808
9	854.0	682.8	496.7	613.6	694.7	299.6	41.73	54.93	0.9548	-5.244	-5.717
	NCORR	WCORR	WCORR	WCORR			TO/TO	PO2/PO1	PO/PO	EFF-AD	EFF-P
	INLET	INLET	INLET	INLET			STAGE	STAGE	STAGE	STAGE	STAGE
	RPM	LBM/SEC	KG/SEC							%	%
	12187.20	99.55	45.14				1.2057	0.9752	1.7691	86.02	87.09

## AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 10 POINT NO 2

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	U-1 M/SEC	U-2 M/SEC	V'-1 M/SEC	V'-2 M/SEC	VO'-1 M/SEC	VO'-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	168.0	299.5	166.7	194.1	20.8	228.1	274.1	282.2	303.3	201.5	-253.3	-54.1	174.24	252.26	0.0374	0.0908
2	177.9	293.6	176.1	189.1	25.2	224.6	284.6	290.0	313.5	200.1	-259.3	-65.5	184.70	248.73	0.0177	0.0755
3	181.1	288.3	178.9	186.2	27.8	220.0	294.8	297.8	321.4	201.8	-267.0	-77.8	187.63	247.57	0.0907	0.9615
4	185.0	279.2	181.7	180.4	35.0	213.0	324.3	321.3	341.6	210.4	-289.3	-108.2	190.04	246.67	-0.0453	0.0211
5	186.2	271.6	181.0	168.8	43.7	212.8	361.1	352.5	365.4	219.1	-317.4	-139.6	189.16	237.09	-0.0997	-0.0328
6	184.3	263.5	177.7	156.0	48.8	212.4	395.4	383.7	389.5	231.7	-346.6	-171.3	186.12	223.65	-0.1458	-0.0870
7	180.5	255.6	174.0	139.0	47.9	214.5	419.3	407.1	410.1	237.5	-371.4	-192.6	182.49	199.89	-0.1714	-0.1238
8	177.5	248.8	171.1	126.0	47.1	214.6	426.9	414.9	416.6	236.6	-379.8	-200.3	179.26	180.73	-0.1748	-0.1322
9	174.8	240.6	168.5	110.8	46.2	213.6	434.1	422.7	422.9	236.6	-387.9	-209.1	176.41	158.70	-0.1708	-0.1363

SL	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	M-1	M-2	M'-1	M'-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	XEFF-A TOTAL	XEFF-P TOTAL
1	7.1	49.6	56.58	15.60	0.5062	0.8599	0.9136	0.5785	-0.64	5.64	13.07	40.99	0.5458	0.0571	0.0166	1.8631	96.01	96.34
2	8.1	49.9	55.79	19.12	0.5376	0.8415	0.9473	0.5736	0.41	6.54	11.67	36.67	0.5601	0.0888	0.0259	1.8207	93.33	93.86
3	8.8	49.8	56.16	22.70	0.5478	0.8250	0.9722	0.5776	1.40	7.38	11.88	33.46	0.5613	0.0890	0.0258	1.8066	92.97	93.53
4	10.9	49.7	57.88	30.95	0.5604	0.7959	1.0346	0.5997	3.03	8.71	10.90	26.93	0.5558	0.0715	0.0203	1.8110	93.74	94.24
5	13.6	51.5	60.32	39.50	0.5642	0.7693	1.1072	0.6204	3.36	8.24	8.34	20.83	0.5609	0.0782	0.0213	1.8353	92.60	93.20
6	15.4	53.5	62.87	47.51	0.5581	0.7403	1.1795	0.6510	3.56	7.81	6.45	15.37	0.5584	0.1011	0.0254	1.8543	89.86	90.69
7	15.4	56.9	64.93	54.03	0.5460	0.7102	1.2404	0.6598	3.48	6.98	6.48	10.89	0.5748	0.1612	0.0365	1.8613	83.63	84.98
8	15.4	59.5	65.79	57.72	0.5362	0.6878	1.2587	0.6540	3.49	6.73	8.30	8.07	0.5861	0.1900	0.0396	1.8502	80.68	82.26
9	15.4	62.5	66.54	61.99	0.5276	0.6618	1.2767	0.6509	3.07	6.05	10.95	4.55	0.5937	0.2172	0.0403	1.8321	77.85	79.64

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	EPSI-1 DEGREE	EPSI-2 DEGREE	PCT TE SPAN
1	551.3	982.7	547.1	636.8	68.1	748.4	899.2	926.0	995.0	661.1	-831.1	-177.5	35.69	51.67	2.142	5.201	0.0500
2	583.7	963.3	577.8	620.4	82.8	736.8	933.7	951.6	1028.5	656.6	-850.9	-214.8	37.83	50.94	2.013	4.324	0.1000
3	594.2	945.8	587.1	611.0	91.3	722.0	967.2	977.2	1054.5	662.1	-876.0	-255.2	38.43	50.70	0.039	3.524	0.1499
4	607.0	915.9	596.0	591.9	114.9	699.0	1063.9	1054.0	1120.7	690.2	-949.1	-355.0	38.92	50.52	-2.595	1.210	0.3000
5	610.9	891.2	593.9	553.8	143.2	698.3	1184.7	1156.5	1198.9	718.8	-1041.5	-458.2	38.74	48.56	-5.711	-1.879	0.5000
6	604.7	864.6	583.2	512.0	160.1	696.8	1297.2	1258.9	1277.9	760.3	-1137.1	-562.1	38.12	45.81	-8.352	-4.985	0.7000
7	592.3	838.7	571.1	456.0	157.3	703.9	1375.7	1335.7	1345.6	779.2	-1218.4	-631.8	37.38	40.94	-9.820	-7.094	0.8500
8	582.3	816.4	561.4	413.3	154.4	704.1	1400.6	1361.3	1366.8	776.4	-1246.2	-657.2	36.71	37.02	-10.014	-7.574	0.9000
9	573.4	789.5	553.0	363.5	151.7	700.8	1424.3	1386.9	1387.5	776.4	-1272.6	-686.1	36.13	32.59	-9.789	-7.809	0.9500
T02/T01 PO2/PO1 EFF-AD ROTOR EFF-P ROTOR																	
1.2109 1.8360 89.84 90.66																	
WCI/A1 WCI/A1																	
LBM/SEC KG/SEC																	
SQFT SQM																	
37.70 193.98																	

# AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 104 SPEED CODE 10 POINT NO 2

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	311.7	212.2	219.7	205.2	221.1	54.1	276.86	305.09	0.1375	0.1483
2	307.9	211.8	216.9	208.5	218.5	59.0	275.30	304.23	0.1262	0.1325
3	304.3	214.2	215.5	205.2	214.9	61.5	275.45	308.86	0.1146	0.1173
4	298.9	216.1	212.6	205.3	210.1	67.4	277.41	312.85	0.0782	0.0757
5	293.9	217.9	203.1	202.3	212.4	80.9	271.10	310.67	0.0295	0.0256
6	286.9	216.8	190.6	199.1	214.4	85.9	259.66	306.50	-0.0204	-0.0244
7	279.6	214.0	174.5	196.2	218.4	85.4	238.95	299.38	-0.0601	-0.0657
8	273.4	208.5	163.3	192.6	219.2	79.9	223.22	291.89	-0.0749	-0.0815
9	265.7	195.6	150.3	183.2	219.1	68.7	205.14	274.97	-0.0909	-0.0991

SL	B-1	B-2	M-1	M-2	INCS	INCM	DEV	TURN	D-FAC	OMEGA-B	LOSS-P	PO2/	PO/PO	TO/TO	%EFF-A	%EFF-P
	DEGREE	DEGREE			DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	STAGE	STAGE	TOT-STG	TOT-STG
1	45.1	14.8	0.9006	0.5882	-5.12	-2.45	22.89	30.33	0.5044	0.1030	0.0357	0.9579	1.7826	1.2024	88.68	89.55
2	45.1	16.1	0.8888	0.5878	-3.49	-0.51	22.03	29.00	0.4951	0.0880	0.0309	0.9647	1.7556	1.1999	87.25	88.21
3	44.8	16.6	0.8778	0.5953	-3.10	0.17	20.83	28.19	0.4788	0.0596	0.0214	0.9765	1.7641	1.1979	88.93	89.77
4	44.6	18.1	0.8603	0.6011	-3.53	0.58	18.42	26.47	0.4625	0.0403	0.0152	0.9846	1.7831	1.1972	91.09	91.78
5	46.3	21.8	0.8409	0.6047	-5.50	-0.46	17.21	24.48	0.4476	0.0374	0.0148	0.9861	1.8092	1.2043	90.32	91.09
6	48.4	23.3	0.8142	0.5990	-9.83	-4.01	15.23	25.01	0.4491	0.0445	0.0186	0.9843	1.8242	1.2137	87.63	88.63
7	51.4	23.5	0.7847	0.5862	-14.37	-8.11	15.79	27.85	0.4653	0.0519	0.0228	0.9826	1.8295	1.2307	81.59	83.07
8	53.3	22.5	0.7631	0.5686	-15.55	-9.17	15.61	30.77	0.4897	0.0556	0.0249	0.9821	1.8199	1.2370	78.67	80.38
9	55.5	20.6	0.7377	0.5304	-16.32	-9.85	14.67	34.97	0.5476	0.0897	0.0414	0.9727	1.7835	1.2420	74.21	76.20

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	PCT TE	EPSI-1	EPSI-2
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	SPAN	DEGREE	DEGREE
1	1022.8	696.2	720.9	673.2	725.6	177.6	56.70	62.49	0.0550	7.878	8.498
2	1010.2	695.1	711.6	667.6	717.0	193.5	56.38	62.31	0.1083	7.233	7.589
3	998.5	702.8	707.0	673.1	705.1	201.8	56.42	63.26	0.1610	6.567	6.720
4	980.8	709.0	697.6	673.6	689.5	221.2	56.82	64.07	0.3151	4.482	4.338
5	964.4	715.0	666.5	663.8	697.0	265.5	55.52	63.63	0.5165	1.690	1.465
6	941.2	711.5	625.5	653.2	703.3	281.9	53.18	62.77	0.7145	-1.167	-1.400
7	917.4	702.1	572.6	643.8	716.7	280.2	48.94	61.32	0.8603	-3.444	-3.763
8	897.0	684.0	535.8	631.8	719.3	262.1	45.72	59.78	0.9080	-4.289	-4.669
9	871.7	641.9	493.2	601.1	718.7	225.3	42.01	56.32	0.9548	-5.208	-5.676
	NCORR	WCORR	WCORR				TO/TO	PO2/PO1	PO/PO	EFF-AD	EFF-P
	INLET	INLET	INLET				STAGE		STAGE	STAGE	STAGE
	RPM	LBM/SEC	KG/SEC							%	%
	12188.60	97.79	44.35				1.2109	0.9802	1.7996	86.63	87.68

## AIRFOIL AERODYNAMIC SUMMARY PRINT

MARY PRINT  
RUN NO 104 SPEED CODE 10 POINT NO 3

100 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

100 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)																		
SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2		
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN		
1	162.8	300.7	161.5	194.1	20.4	229.6	274.1	282.2	300.7	201.1	-253.7	-52.6	170.43	252.41	0.0365	0.0908		
2	172.3	295.1	170.6	190.4	24.3	225.5	284.6	290.1	311.2	201.0	-260.3	-54.5	180.61	250.58	0.0158	0.0756		
3	175.3	290.1	173.2	187.1	26.8	221.8	294.8	297.9	319.1	202.0	-268.0	-76.1	183.32	248.78	-0.0024	0.0616		
4	179.3	282.6	175.9	180.4	35.1	217.6	324.3	321.3	338.5	208.1	-289.2	-103.7	185.86	246.74	-0.0515	0.0208		
5	179.9	276.3	174.1	164.9	45.0	221.7	361.1	352.5	360.9	210.5	-316.1	-130.8	184.01	231.51	-0.1089	-0.0344		
6	177.5	268.4	170.5	149.1	49.3	223.1	395.4	383.7	385.9	219.2	-346.1	-160.6	180.71	213.31	-0.1554	-0.0903		
7	173.3	260.3	166.4	129.2	48.5	226.0	419.3	407.1	406.4	222.5	-370.8	-181.1	176.64	185.59	-0.1777	-0.1262		
8	170.2	254.8	163.4	117.9	47.6	225.8	426.9	414.9	413.0	222.8	-379.3	-189.1	173.26	169.21	-0.1789	-0.1335		
9	167.4	248.2	160.8	104.8	46.7	225.0	434.1	422.7	419.5	223.8	-387.4	-197.8	170.40	150.49	-0.1728	-0.1369		
SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PO2/	KEFF-A	KEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	7.2	49.8	57.45	15.17	0.4898	0.8632	0.9046	0.5774	0.25	6.52	12.65	42.27	0.5452	0.0650	0.0189	1.8670	95.54	95.91
2	8.1	49.9	56.72	18.75	0.5198	0.8460	0.9388	0.5761	1.34	7.47	11.29	37.98	0.5561	0.0900	0.0262	1.8298	93.35	93.89
3	8.8	49.9	57.11	22.16	0.5292	0.8301	0.9635	0.5778	2.36	8.34	11.34	34.95	0.5607	0.0926	0.0269	1.8178	92.82	93.39
4	11.3	50.3	58.72	29.89	0.5422	0.8054	1.0234	0.5929	3.87	9.54	9.84	28.83	0.5631	0.0775	0.0223	1.8293	93.39	93.92
5	14.5	53.3	61.19	38.31	0.5438	0.7810	1.0913	0.5949	4.23	9.11	7.16	22.88	0.5871	0.0973	0.0269	1.8617	91.13	91.87
6	16.2	56.1	63.83	46.96	0.5363	0.7509	1.1659	0.6132	4.52	8.76	5.90	16.87	0.5973	0.1367	0.0347	1.8835	86.90	88.01
7	16.3	60.1	65.89	54.36	0.5231	0.7197	1.2264	0.6152	4.45	7.95	6.81	11.53	0.6183	0.1986	0.0447	1.8935	80.82	82.45
8	16.3	62.3	66.75	57.95	0.5129	0.7010	1.2451	0.6131	4.45	7.69	8.53	8.81	0.6260	0.2219	0.0460	1.8891	78.57	80.39
9	16.2	64.9	67.50	61.98	0.5043	0.6798	1.2635	0.6131	4.02	7.01	10.95	5.51	0.6310	0.2447	0.0454	1.8784	76.35	78.34
SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE	
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN	
1	534.3	986.6	530.0	637.0	67.0	753.5	899.3	926.0	986.7	659.9	-832.3	-172.6	34.91	51.70	2.093	5.205	0.0500	
2	565.4	968.4	559.8	624.6	79.8	740.0	933.7	951.7	1021.1	659.5	-854.0	-211.7	36.99	51.32	0.905	4.329	0.1000	
3	575.1	952.0	568.3	613.8	88.0	727.7	967.3	977.3	1047.0	662.6	-879.3	-249.6	37.54	50.95	-0.135	3.527	0.1499	
4	588.4	927.3	577.1	591.8	115.1	713.9	1064.0	1054.1	1110.6	682.7	-948.9	-340.2	38.06	50.53	-2.950	1.192	0.3000	
5	590.1	906.6	571.3	541.1	147.6	727.4	1184.8	1156.5	1184.1	690.6	-1037.2	-429.1	37.69	47.42	-6.237	-1.970	0.5000	
6	582.4	880.6	559.5	489.3	161.6	732.1	1297.3	1259.0	1266.0	719.0	-1135.7	-526.9	37.01	43.69	-8.905	-5.174	0.7000	
7	568.8	854.1	546.0	423.9	159.2	741.5	1375.8	1335.8	1333.5	730.0	-1216.6	-594.3	36.18	38.01	-10.181	-7.229	0.8500	
8	558.3	835.8	536.0	386.7	156.0	741.0	1400.7	1361.4	1355.2	731.1	-1244.6	-620.4	35.49	34.66	-10.252	-7.652	0.9000	
9	549.4	814.3	527.6	344.0	153.2	738.1	1424.4	1387.0	1376.3	734.4	-1271.2	-648.9	34.90	30.82	-9.902	-7.842	0.9500	
	WC1/A1		WC1/A1						T02/T01		P02/P01		EFF-AD		EFF-P			
	LBM/SEC		KG/SEC										ROTOR		ROTOR			
	SQFT		SQM										%		%			
	36.67		178.93						1.2192		1.8598		88.41		89.37			

# AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 104 SPEED CODE 10 POINT NO 3

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	310.9	198.6	217.0	191.8	222.6	51.5	274.98	292.81	0.1389	0.1494
2	307.3	197.6	215.1	189.8	219.5	55.0	274.70	291.27	0.1292	0.1347
3	303.9	199.7	213.3	191.7	216.5	56.1	274.20	295.77	0.1193	0.1207
4	299.8	202.2	209.6	191.9	214.3	63.8	275.21	299.33	0.0877	0.0827
5	296.0	207.0	197.0	191.6	221.0	78.3	264.24	300.98	0.0421	0.0354
6	289.4	208.8	182.3	191.4	224.9	83.4	248.95	301.42	-0.0096	-0.0151
7	282.3	207.5	163.7	190.4	230.0	82.6	224.74	297.04	-0.0545	-0.0601
8	277.2	202.4	153.7	186.8	230.6	78.1	211.05	289.52	-0.0713	-0.0778
9	270.9	191.4	142.1	178.4	230.7	69.3	195.08	273.97	-0.0892	-0.0972

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	P02/ P01	PO/PO STAGE	TO/TO STAGE	XEFF-A TOT-STG	XEFF-P TOT-STG
1	45.6	15.0	0.8970	0.5476	-4.57	-1.90	23.15	30.62	0.5518	0.0988	0.0342	0.9598	1.7916	1.2043	88.71	89.59
2	45.5	16.1	0.8860	0.5455	-3.12	-0.14	22.02	29.37	0.5466	0.0901	0.0317	0.9640	1.7641	1.2018	87.23	88.20
3	45.4	16.3	0.8753	0.5519	-2.58	0.70	20.46	29.09	0.5344	0.0657	0.0236	0.9742	1.7708	1.2005	88.41	89.30
4	45.6	18.4	0.8613	0.5590	-2.54	1.57	18.64	27.24	0.5198	0.0551	0.0208	0.9788	1.7890	1.2012	89.83	90.62
5	48.3	22.2	0.8445	0.5704	-3.49	1.55	17.64	26.06	0.5032	0.0458	0.0181	0.9828	1.8270	1.2118	88.68	89.59
6	51.0	23.5	0.8176	0.5725	-7.22	-1.40	15.42	27.43	0.5008	0.0391	0.0164	0.9860	1.8548	1.2252	85.66	86.84
7	54.5	23.4	0.7877	0.5640	-11.20	-4.94	15.70	31.11	0.5171	0.0397	0.0174	0.9866	1.8677	1.2448	79.75	81.44
8	56.3	22.7	0.7697	0.5477	-12.55	-6.17	15.76	33.62	0.5414	0.0498	0.0223	0.9837	1.8606	1.2516	77.07	78.97
9	58.3	21.2	0.7488	0.5148	-13.50	-7.02	15.35	37.11	0.5922	0.0818	0.0376	0.9745	1.8318	1.2577	73.20	75.36

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	1020.1	651.5	712.0	629.2	730.4	169.1	56.32	59.97	0.0550	7.958	8.558
2	1008.2	648.4	705.7	622.8	720.0	180.4	56.26	59.65	0.1083	7.404	7.716
3	997.1	655.3	699.7	628.9	710.3	184.0	56.16	60.58	0.1610	6.834	6.917
4	983.6	663.5	687.8	629.6	703.1	209.3	56.37	61.30	0.3151	5.027	4.739
5	971.3	679.0	646.4	628.6	725.0	256.8	54.12	61.64	0.5165	2.411	2.026
6	949.6	685.1	598.0	628.1	737.7	273.7	50.99	61.73	0.7145	-0.551	-0.868
7	926.1	680.9	537.0	624.7	754.5	270.9	46.03	60.84	0.8603	-3.123	-3.442
8	909.4	664.2	504.3	612.8	756.8	256.2	43.23	59.30	0.9080	-4.085	-4.455
9	889.0	627.9	466.3	585.3	756.9	227.4	39.95	56.11	0.9548	-5.109	-5.568
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KS/SEC				TO/TO STAGE	P02/P01	PO/PO STAGE	EFF-AD STAGE	EFF-P STAGE
	12189.50	95.11	43.13				1.2192	0.9795	1.8216	85.20	86.39



## AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 10 POINT NO 6

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	U-1 M/SEC	U-2 M/SEC	V'-1 M/SEC	V'-2 M/SEC	VO'-1 M/SEC	VO'-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	160.2	301.0	158.5	194.6	23.6	229.7	274.1	282.3	296.4	201.5	-250.5	-52.6	168.36	251.19	0.0364	0.0910
2	169.6	295.5	167.3	190.3	27.8	226.0	284.6	290.1	306.5	200.8	-256.8	-64.0	178.35	248.73	0.0156	0.0760
3	172.1	290.5	169.4	186.4	30.4	222.7	294.8	297.9	314.1	201.0	-264.5	-75.1	180.48	246.12	-0.0027	0.0622
4	175.3	283.3	171.0	178.8	38.3	219.8	324.3	321.3	333.3	205.6	-286.0	-101.5	181.96	242.69	-0.0524	0.0219
5	175.6	279.6	168.7	164.2	48.7	226.3	361.1	352.5	355.0	207.1	-312.4	-126.2	179.54	229.10	-0.1117	-0.0340
6	172.8	271.8	164.6	146.5	52.6	229.0	395.4	383.7	380.3	213.1	-342.8	-154.8	175.81	208.28	-0.1618	-0.0924
7	168.4	262.7	160.3	122.8	51.5	232.2	419.4	407.2	401.2	213.8	-367.8	-175.0	171.54	175.17	-0.1852	-0.1291
8	165.0	257.2	157.1	110.6	50.5	232.3	426.9	415.0	407.9	213.6	-376.5	-182.7	168.00	157.67	-0.1854	-0.1358
9	162.1	251.1	154.3	98.0	49.5	231.2	434.2	422.8	414.5	215.1	-384.7	-191.5	164.94	139.79	-0.1768	-0.1381

SL	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	M-1	M-2	M'-1	M'-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D FAC	OMEGA-B TOTAL	LOSS-P TOTAL	P02/ P01	XEFF-A TOTAL	XEFF-P TOTAL
1	8.5	49.8	57.61	15.14	0.4816	0.8655	0.8908	0.5795	0.39	6.67	12.61	42.48	0.5340	0.0719	0.0209	1.8464	95.10	95.51
2	9.4	49.9	56.88	18.62	0.5112	0.8483	0.9238	0.5764	1.50	7.63	11.17	38.26	0.5470	0.0961	0.0280	1.8108	92.96	93.52
3	10.2	50.1	57.35	21.98	0.5191	0.8322	0.9473	0.5759	2.59	8.57	11.16	35.37	0.5541	0.0987	0.0288	1.8002	92.42	93.02
4	12.6	50.9	59.34	29.58	0.5292	0.8081	1.0062	0.5865	4.29	9.97	9.54	29.56	0.5625	0.0853	0.0246	1.8164	92.82	93.39
5	16.1	53.9	61.68	37.45	0.5302	0.7912	1.0720	0.5859	4.71	9.60	6.29	24.23	0.5908	0.1000	0.0280	1.8646	91.07	91.82
6	17.8	57.2	64.42	46.42	0.5215	0.7606	1.1473	0.5964	5.11	9.36	5.36	18.01	0.6100	0.1472	0.0378	1.8887	86.18	87.35
7	17.9	62.0	66.54	54.81	0.5073	0.7255	1.2089	0.5905	5.10	8.60	7.26	11.73	0.6385	0.2170	0.0483	1.8943	79.47	81.21
8	17.9	64.4	67.43	58.71	0.4966	0.7070	1.2278	0.5870	5.13	8.37	9.29	8.72	0.6475	0.2416	0.0490	1.8907	77.18	79.11
9	17.8	67.0	68.19	62.82	0.4874	0.6872	1.2465	0.5886	4.71	7.70	11.79	5.37	0.6510	0.2629	0.0474	1.8823	75.18	77.27

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	EPSI-1 DEGREE	EPSI-2 DEGREE	PCT TE SPAN
1	525.8	987.7	520.0	638.4	77.6	753.6	899.3	926.1	972.5	661.3	-821.8	-172.5	34.48	51.45	2.087	5.216	0.0500
2	556.5	969.5	549.0	624.4	91.2	741.6	933.8	951.7	1005.7	658.8	-842.6	-210.1	36.53	50.94	0.892	4.353	0.1000
3	564.6	953.0	555.8	611.7	99.7	730.8	967.4	977.3	1030.4	659.5	-867.7	-246.6	36.96	50.41	-0.153	3.565	0.1499
4	575.1	929.6	561.2	586.7	125.6	721.0	1064.1	1054.2	1093.5	674.6	-938.5	-333.1	37.27	49.70	-3.002	1.253	0.3000
5	576.1	917.4	553.5	538.6	159.9	742.6	1164.9	1156.6	1164.8	679.3	-1024.9	-414.0	36.77	46.92	-6.401	-1.946	0.5000
6	567.1	891.8	540.2	480.7	172.7	751.2	1297.4	1259.1	1247.7	699.3	-1124.7	-507.9	36.01	42.66	-9.270	-5.296	0.7000
7	552.4	861.8	525.9	403.0	169.1	761.8	1375.9	1335.9	1316.5	701.4	-1206.9	-574.1	35.13	35.88	-10.610	-7.397	0.8500
8	541.4	844.0	515.4	362.8	165.5	762.1	1400.8	1361.5	1338.5	700.7	-1235.2	-599.5	34.41	32.29	-10.625	-7.779	0.9000
9	531.8	824.0	506.4	321.5	162.3	758.7	1424.5	1387.1	1360.0	705.8	-1262.2	-628.4	33.78	28.63	-10.132	-7.910	0.9500

	WCI/A1 LBM/SEC	WCI/A1 KG/SEC		T02/T01	P02/P01	EFF-AD ROTOR	EFF-P ROTOR
	SOFT	SQM				%	%
	35.79	174.63		1.2196	1.8554	87.90	88.89

# AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 104 SPEED CODE 10 POINT NO 6

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	310.0	192.6	215.7	186.2	222.7	49.3	272.22	285.52	0.1396	0.1499
2	306.4	191.1	213.3	184.1	219.9	51.3	271.37	283.48	0.1307	0.1357
3	302.9	192.6	210.9	185.2	217.4	52.8	270.09	286.63	0.1214	0.1223
4	299.0	195.3	206.5	185.4	216.2	61.4	269.88	289.71	0.0918	0.0856
5	297.8	201.3	194.7	186.2	225.3	76.4	260.41	292.85	0.0481	0.0399
6	291.5	205.8	178.6	187.5	230.4	84.9	243.19	295.84	-0.0028	-0.0093
7	283.4	205.1	156.9	186.5	236.0	85.5	214.51	291.39	-0.0494	-0.0550
8	278.5	206.8	146.1	183.4	237.1	81.6	199.81	284.82	-0.0674	-0.0737
9	272.6	191.0	134.5	176.8	237.1	72.2	183.95	272.12	-0.0870	-0.0948

SL	B-1	B-2	M-1	M-2	INCS	INCM	DEV	TURN	D-FAC	OMEGA-B	LOSS-P	PO2/	PO/PO	TO/TO	KEFF-A	KEFF-P
	DEGREE	DEGREE			DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	STAGE	STAGE	TOT-STG	TOT-STG
1	45.8	14.8	0.8954	0.5310	-4.39	-1.73	22.93	31.01	0.5724	0.0964	0.0334	0.9609	1.7744	1.2013	88.41	89.31
2	45.8	15.5	0.8843	0.5271	-2.83	0.16	21.44	30.25	0.5717	0.0912	0.0322	0.9636	1.7455	1.1989	86.72	87.71
3	45.8	15.9	0.8731	0.5317	-2.14	1.14	20.05	29.93	0.5616	0.0696	0.0250	0.9727	1.7508	1.1978	87.71	88.63
4	46.3	18.3	0.8594	0.5392	-1.85	2.27	18.59	27.98	0.5465	0.0603	0.0227	0.9769	1.7712	1.1994	88.91	89.76
5	49.2	22.3	0.8501	0.5538	-2.60	2.45	17.73	26.87	0.5328	0.0673	0.0266	0.9746	1.8123	1.2118	87.39	88.39
6	52.2	24.3	0.8233	0.5634	-5.98	-0.16	16.23	27.86	0.5200	0.0514	0.0214	0.9814	1.8510	1.2267	84.79	86.04
7	56.4	24.6	0.7898	0.5563	-9.38	-3.11	16.88	31.75	0.5323	0.0423	0.0184	0.9856	1.8667	1.2478	78.72	80.49
8	58.3	24.0	0.7721	0.5421	-10.53	-4.15	17.05	34.34	0.5543	0.0492	0.0218	0.9838	1.8628	1.2556	76.03	78.32
9	60.4	22.2	0.7522	0.5128	-11.43	-4.96	16.33	33.20	0.6025	0.0746	0.0340	0.9765	1.8396	1.2625	72.41	74.65

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	PCT TE	EPSI-1	EPSI-2
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	SPAN	DEGREE	DEGREE
1	1017.2	632.0	707.8	611.0	730.5	161.7	55.75	58.48	0.0550	8.000	8.589
2	1005.2	627.0	699.9	604.0	721.5	168.3	55.58	58.06	0.1083	7.486	7.776
3	993.8	631.8	692.1	607.7	713.2	173.1	55.32	58.70	0.1610	6.956	7.006
4	981.1	640.8	677.6	603.2	709.5	201.6	55.27	59.34	0.3151	5.262	4.905
5	977.2	660.5	638.9	611.1	739.4	250.7	53.33	59.98	0.5165	2.758	2.288
6	956.5	675.4	586.0	615.3	755.9	278.4	49.81	60.59	0.7145	-0.162	-0.533
7	929.8	673.1	514.7	611.8	774.3	280.5	43.93	59.68	0.8603	-2.828	-3.151
8	913.7	658.8	479.5	601.9	777.8	267.9	40.92	58.33	0.9080	-3.863	-4.223
9	894.4	626.7	441.3	580.2	778.0	237.0	37.67	55.73	0.9548	-4.987	-5.434
	NCORR	WCORR	WCORR	WCORR			TO/TO	PO2/PO1	PO/PO	EFF-AD	EFF-P
	INLET	INLET	INLET	INLET			STAGE	STAGE	STAGE	STAGE	STAGE
	RPM	LBM/SEC	KG/SEC								
	12190.30	92.82	42.09				1.2196	0.9765	1.8119	84.22	85.48

## AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 10 POINT NO 9

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	169.3	301.4	166.2	196.4	26.9	228.6	274.2	282.3	298.0	203.6	-247.3	-53.8	174.03	251.02	0.0377	0.0912
2	177.9	295.5	175.2	192.4	30.9	224.3	284.7	290.1	308.4	203.3	-253.8	-65.8	184.14	248.93	0.0182	0.0762
3	180.5	289.8	177.3	187.0	33.7	221.4	294.9	297.9	315.7	202.1	-261.2	-76.5	186.29	244.29	0.0013	0.0625
4	183.9	280.5	179.4	183.0	40.5	212.6	324.4	321.4	335.8	212.8	-283.9	-108.7	188.01	246.32	-0.0445	0.0227
5	184.9	273.6	178.2	170.3	49.5	214.1	361.2	352.6	359.0	219.5	-311.7	-138.5	186.66	235.55	-0.1006	-0.0317
6	182.7	265.9	173.9	155.0	56.0	216.1	395.5	383.8	381.5	228.4	-339.5	-167.8	182.69	218.77	-0.1474	-0.0867
7	178.6	258.1	170.0	137.4	54.9	218.5	419.5	407.2	402.3	233.5	-364.6	-188.8	178.87	194.74	-0.1727	-0.1239
8	175.5	251.6	167.1	124.7	53.9	218.5	427.0	415.1	408.9	232.8	-373.2	-196.5	175.67	176.38	-0.1759	-0.1322
9	172.7	243.5	164.4	109.5	52.9	217.5	434.3	422.9	415.3	232.7	-381.4	-205.4	172.80	154.69	-0.1716	-0.1363

SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-8	LOSS-P	PO2/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	9.2	49.4	56.04	15.32	0.5072	0.8682	0.8977	0.5866	-1.18	5.09	12.80	40.71	0.5249	0.0640	0.0186	1.8307	95.54	95.90
2	10.0	49.4	55.35	18.92	0.5376	0.8501	0.9318	0.5849	-0.03	6.09	11.47	36.42	0.5365	0.0903	0.0263	1.7907	93.21	93.74
3	10.8	49.9	55.82	22.28	0.5459	0.8319	0.9549	0.5800	1.06	7.04	11.46	33.54	0.5481	0.1003	0.0292	1.7757	92.10	92.71
4	12.7	49.3	57.73	30.72	0.5567	0.8027	1.0169	0.6090	2.88	8.55	10.67	27.02	0.5350	0.0679	0.0193	1.7817	94.04	94.50
5	15.5	51.4	60.27	39.01	0.5601	0.7776	1.0874	0.6240	3.30	8.19	7.86	21.26	0.5472	0.0763	0.0209	1.8078	92.75	93.33
6	17.9	54.2	62.91	47.10	0.5529	0.7493	1.1546	0.6437	3.60	7.84	6.05	15.81	0.5544	0.1025	0.0260	1.8291	89.75	90.57
7	17.9	57.7	65.05	53.80	0.5399	0.7193	1.2159	0.6506	3.60	7.11	6.24	11.25	0.5736	0.1648	0.0376	1.8377	83.33	84.68
8	17.9	60.2	65.93	57.48	0.5300	0.6975	1.2346	0.6452	3.63	6.87	8.07	8.44	0.5849	0.1937	0.0406	1.8278	80.39	81.97
9	17.9	63.2	66.71	61.83	0.5211	0.6717	1.2530	0.6420	3.23	6.22	10.80	4.87	0.5930	0.2215	0.0413	1.8101	77.51	79.29

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN
1	552.3	988.7	545.3	644.4	88.1	749.9	899.5	926.3	977.6	668.1	-811.4	-176.4	35.64	51.41	2.163	5.226	0.0500
2	583.7	969.5	574.8	631.1	101.4	735.9	934.0	952.0	1011.7	667.0	-832.6	-216.0	37.71	50.98	1.041	4.365	0.1000
3	592.3	951.0	581.8	613.6	110.6	726.5	967.6	977.5	1035.9	663.0	-857.0	-251.0	38.15	50.03	0.076	3.582	0.1499
4	603.3	920.4	588.5	600.3	132.7	697.7	1064.3	1054.4	1101.9	698.3	-931.6	-356.7	38.51	50.45	-2.551	1.302	0.3000
5	606.7	897.6	584.6	558.9	162.5	702.4	1185.1	1156.9	1177.9	720.3	-1022.6	-454.4	38.23	48.24	-5.762	-1.816	0.5000
6	599.4	872.4	570.5	508.5	183.7	708.9	1297.7	1259.4	1251.6	749.4	-1114.0	-550.5	37.42	44.81	-8.446	-4.970	0.7000
7	586.0	846.9	557.7	450.9	180.0	716.9	1376.2	1336.2	1319.8	766.0	-1196.2	-619.3	36.63	39.89	-9.897	-7.097	0.8500
8	575.9	825.5	548.1	409.1	176.7	717.0	1401.1	1361.8	1341.5	763.7	-1224.4	-644.8	35.98	36.12	-10.078	-7.576	0.9000
9	566.8	799.0	539.6	359.4	173.5	713.6	1424.8	1387.4	1362.7	763.6	-1251.3	-673.8	35.39	31.68	-9.831	-7.811	0.9500

	WC1/A1	WC1/A1		
	LBM/SEC	KG/SEC		
	SQFT	SQM		
	37.17	181.40		

	T02/T01	PO2/PO1	EFF-AD	EFF-P
			ROTOR	ROTOR
			X	X
	1.2055	1.8088	89.74	90.56

# AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 104 SPEED CODE 10 POINT NO 9

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	313.2	212.2	221.4	204.8	221.6	55.4	274.45	300.96	0.1378	0.1485
2	309.4	211.1	219.3	202.6	218.3	59.3	274.07	299.34	0.1269	0.1330
3	305.6	212.9	215.9	203.9	216.2	61.3	271.26	302.81	0.1157	0.1181
4	300.0	214.9	214.5	203.2	209.7	70.1	275.59	306.12	0.0805	0.0772
5	295.6	217.6	204.4	202.0	213.5	80.8	268.55	307.03	0.0336	0.0284
6	288.9	217.1	189.7	199.0	217.9	86.8	254.52	303.34	-0.0171	-0.0219
7	281.9	214.6	173.2	196.3	222.4	86.5	233.68	296.71	-0.0584	-0.0643
8	276.0	209.2	162.3	192.6	223.2	81.8	218.63	289.09	-0.0737	-0.0805
9	268.3	196.7	149.1	183.7	223.0	70.4	200.64	273.04	-0.0903	-0.0985

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCN DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	XEFF-A TOT-STG	XEFF-P TOT-STG
1	44.9	15.1	0.9079	0.5895	-5.28	-2.61	23.23	29.83	0.5059	0.1034	0.0358	0.9572	1.7508	1.1972	87.97	88.88
2	44.8	15.3	0.8964	0.5871	-3.85	-0.87	22.17	28.50	0.4995	0.0925	0.0325	0.9624	1.7228	1.1942	86.54	87.53
3	45.0	16.7	0.8838	0.5925	-2.98	0.30	20.87	28.27	0.4871	0.0645	0.0231	0.9743	1.7301	1.1934	87.61	88.53
4	44.3	19.0	0.8663	0.5993	-3.84	0.27	19.27	25.31	0.4642	0.0432	0.0162	0.9833	1.7518	1.1907	91.05	91.72
5	46.2	21.8	0.8486	0.6053	-5.53	-0.48	17.21	24.45	0.4531	0.0366	0.0145	0.9862	1.7817	1.1982	90.49	91.23
6	49.0	23.6	0.8229	0.6011	-9.23	-3.42	15.46	25.38	0.4562	0.0425	0.0178	0.9847	1.7997	1.2083	87.72	88.69
7	52.1	23.8	0.7936	0.5891	-13.67	-7.41	16.05	28.29	0.4723	0.0502	0.0220	0.9828	1.8069	1.2260	81.43	82.90
8	54.0	23.0	0.7727	0.5718	-14.88	-8.51	16.09	30.96	0.4956	0.0556	0.0249	0.9817	1.7977	1.2325	78.42	80.11
9	56.2	21.0	0.7473	0.5344	-15.63	-9.16	15.09	35.24	0.5523	0.0873	0.0401	0.9729	1.7627	1.2378	73.88	75.86

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	1027.7	696.2	726.3	672.1	727.0	181.7	56.21	61.64	0.0550	7.893	8.511
2	1015.2	692.6	719.6	664.8	716.1	194.4	56.13	61.31	0.1083	7.272	7.620
3	1002.5	698.4	708.4	668.8	709.4	201.1	55.56	62.02	0.1610	6.628	6.764
4	984.2	705.1	703.8	666.6	688.0	229.9	56.44	62.70	0.3151	4.613	4.425
5	969.8	713.9	670.6	662.8	700.6	265.1	55.00	62.88	0.5165	1.925	1.625
6	948.0	712.2	622.6	652.8	715.0	284.8	52.13	62.13	0.7145	-0.979	-1.258
7	924.9	704.0	568.3	644.2	729.7	284.0	47.86	60.77	0.8603	-3.347	-3.682
8	905.4	686.4	532.4	631.8	732.3	268.3	44.78	59.21	0.9080	-4.222	-4.611
9	880.3	645.4	489.3	602.6	731.8	231.0	41.09	55.92	0.9548	-5.171	-5.643
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1	PO/PO STAGE	EFF-AD STAGE %	EFF-P STAGE %
	12193.10	96.42	43.73				1.2055	0.9798	1.7723	86.39	87.44

## AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 10 POINT NO 10

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	154.1	300.5	152.1	192.1	24.7	231.1	274.1	282.2	292.1	196.8	-249.4	-51.1	163.42	247.37	0.0357	0.0911
2	162.9	294.9	160.5	188.6	27.8	226.7	284.6	290.0	302.8	199.0	-256.7	-63.3	173.04	245.91	0.0141	0.0762
3	165.3	290.2	162.5	184.8	30.3	223.7	294.8	297.8	310.4	199.1	-264.5	-74.1	175.04	243.31	-0.0050	0.0626
4	168.3	285.0	164.1	177.9	37.5	222.6	324.3	321.3	330.4	203.5	-286.8	-98.7	176.54	240.78	-0.0579	0.0220
5	168.5	282.3	162.1	163.5	46.1	230.0	361.1	352.5	354.3	204.3	-315.0	-122.4	174.53	227.04	-0.1229	-0.0365
6	165.3	275.4	157.5	141.5	50.3	236.2	395.4	383.7	379.4	204.3	-345.1	-147.5	170.29	199.33	-0.1776	-0.0994
7	160.5	267.1	152.6	114.7	49.6	241.2	419.3	407.1	399.9	201.7	-369.7	-165.9	165.42	162.18	-0.2002	-0.1363
8	157.0	261.7	149.2	100.3	48.9	241.7	426.9	414.9	406.4	200.1	-378.0	-173.2	161.62	141.76	-0.1989	-0.1413
9	153.9	255.9	146.2	86.8	48.2	240.7	434.1	422.7	412.6	201.6	-385.9	-182.0	158.23	122.91	-0.1856	-0.1411

SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCH	DEV	TURN	D FAC	OMEGA-B	LOSS-P	P02/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	P01	TOTAL	TOTAL
1	9.2	50.3	58.56	14.91	0.4623	0.8638	0.8764	0.5712	1.34	7.61	12.38	43.65	0.5374	0.0920	0.0268	1.8346	93.86	94.36
2	9.8	50.3	57.95	18.58	0.4901	0.8463	0.9108	0.5709	2.57	8.70	11.12	39.37	0.5484	0.1119	0.0327	1.8022	91.94	92.57
3	10.6	50.5	58.42	21.88	0.4975	0.8310	0.9342	0.5701	3.67	9.65	11.06	36.54	0.5564	0.1134	0.0331	1.7938	91.43	92.10
4	12.9	51.4	60.25	29.00	0.5071	0.8121	0.9954	0.5798	5.40	11.07	8.96	31.25	0.5695	0.1019	0.0296	1.8205	91.57	92.25
5	15.9	54.5	62.85	36.72	0.5077	0.7970	1.0674	0.5769	5.88	10.77	5.57	26.13	0.6048	0.1274	0.0360	1.8724	88.78	89.72
6	17.8	59.0	65.60	46.05	0.4977	0.7674	1.1419	0.5695	6.29	10.54	5.00	19.55	0.6426	0.1905	0.0492	1.8906	82.53	84.02
7	18.1	64.5	67.71	55.24	0.4824	0.7341	1.2021	0.5545	6.27	9.77	7.68	12.47	0.6782	0.2612	0.0575	1.9108	76.07	78.13
8	18.2	67.4	68.59	59.84	0.4714	0.7156	1.2202	0.5473	6.29	9.53	10.42	8.75	0.6895	0.2864	0.0562	1.9076	73.89	76.12
9	18.3	70.1	69.33	64.42	0.4617	0.6968	1.2380	0.5490	5.86	8.84	13.39	4.91	0.6926	0.3068	0.0523	1.8998	72.11	74.48

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT	TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN	
1	505.6	986.1	499.0	630.2	81.0	758.4	899.2	926.0	958.4	652.1	-818.2	-167.6	33.47	50.66	2.048	5.219	0.0500	
2	534.6	967.7	526.8	618.9	91.4	743.9	933.7	951.6	993.5	652.8	-842.3	-207.7	35.44	50.36	0.810	4.364	0.1000	
3	542.3	952.1	533.1	606.3	99.6	734.1	967.2	977.2	1018.3	653.2	-867.7	-243.1	35.85	49.83	-0.285	3.585	0.1499	
4	552.2	935.0	538.3	583.8	123.0	730.3	1063.9	1054.0	1084.0	667.6	-940.9	-323.7	36.16	49.31	-3.316	1.263	0.3000	
5	552.9	926.1	531.8	536.6	151.1	754.8	1184.7	1156.5	1162.4	670.3	-1033.6	-401.7	35.74	46.50	-7.044	-2.092	0.5000	
6	542.5	903.5	516.8	464.2	164.9	775.1	1297.2	1258.9	1244.7	670.5	-1132.3	-483.8	34.88	40.83	-10.178	-5.694	0.7000	
7	526.5	876.3	500.7	376.5	162.9	791.3	1375.7	1335.7	1312.2	661.9	-1212.9	-544.4	33.88	33.22	-11.471	-7.807	0.8500	
8	515.1	858.6	489.5	329.1	160.4	793.1	1406.6	1361.3	1333.3	656.7	-1240.2	-568.3	33.10	29.03	-11.397	-8.094	0.9000	
9	505.0	839.7	479.5	284.9	158.2	789.9	1424.3	1386.9	1353.9	661.5	-1266.1	-597.0	32.41	25.17	-10.637	-8.083	0.9500	
	WC1/A1	WC1/A1								T02/T01	P02/P01	EFF-AD	EFF-P					
	LBM/SEC	KG/SEC										ROTOR	ROTOR					
	SQFT	SQM										%	%					
	34.63	168.98								1.2261	1.8603	85.74	86.92					

AIRFOIL AERODYNAMIC SUMMARY PRINT  
 100 PERCENT DESIGN SPEED (STATOR PERFORMANCE)      RUN NO 104 SPEED CODE 10 POINT NO 10

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	308.0	181.8	211.3	176.4	224.1	44.2	267.04	273.52	0.1406	0.1509
2	304.2	179.3	209.5	173.1	220.6	46.8	266.92	269.38	0.1330	0.1378
3	300.8	179.6	207.0	173.4	218.3	47.0	265.52	270.80	0.1253	0.1256
4	298.6	184.0	203.2	175.5	218.7	55.2	266.04	276.47	0.1004	0.0927
5	298.4	192.9	191.9	178.5	228.5	73.1	256.51	282.78	0.0614	0.0517
6	292.9	199.4	172.2	181.7	237.8	82.0	233.54	288.53	0.0108	0.0046
7	285.7	200.3	147.5	181.9	244.7	83.8	200.77	285.87	-0.0399	-0.0437
8	281.1	198.2	135.4	179.9	246.4	83.0	184.33	281.06	-0.0604	-0.0647
9	275.4	190.9	122.1	174.0	246.9	78.5	166.33	269.46	-0.0832	-0.0895

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	%EFF-A TOT-STG	%EFF-P TOT-STG
1	46.6	14.0	0.8883	0.4997	-3.61	-0.94	22.17	32.56	0.6124	0.0984	0.0342	0.9605	1.7635	1.2017	87.22	88.17
2	46.4	15.1	0.8767	0.4930	-2.21	0.77	21.02	31.29	0.6135	0.0979	0.0346	0.9614	1.7340	1.1994	85.37	86.45
3	46.5	15.2	0.8658	0.4940	-1.47	1.81	19.34	31.31	0.6095	0.0835	0.0301	0.9677	1.7350	1.1985	85.87	86.92
4	47.1	17.5	0.8566	0.5058	-1.04	3.07	17.72	29.66	0.5936	0.0791	0.0299	0.9699	1.7590	1.2020	86.63	87.65
5	50.0	22.3	0.8494	0.5282	-1.77	3.27	17.71	27.71	0.5682	0.0784	0.0310	0.9704	1.8086	1.2168	85.05	86.24
6	54.0	24.3	0.8235	0.5427	-4.20	1.62	16.16	29.71	0.5552	0.0566	0.0236	0.9794	1.8544	1.2351	82.01	83.49
7	58.9	24.7	0.7919	0.5397	-6.86	-0.60	16.97	34.18	0.5680	0.0468	0.0203	0.9839	1.8765	1.2599	75.73	77.76
8	61.2	24.7	0.7751	0.5316	-7.68	-1.30	17.81	36.44	0.5807	0.0480	0.0212	0.9840	1.8810	1.2691	73.45	75.68
9	63.7	24.3	0.7556	0.5092	-8.19	-1.72	18.39	39.38	0.6137	0.0565	0.0254	0.9820	1.8677	1.2777	70.29	72.75

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	1010.4	596.6	693.2	578.7	735.2	144.9	54.69	56.02	0.0550	8.057	8.644
2	998.0	588.4	687.2	568.0	723.6	153.7	54.67	55.17	0.1083	7.618	7.894
3	986.9	589.4	679.1	568.8	716.1	154.3	54.38	55.46	0.1610	7.181	7.197
4	979.7	603.7	666.9	575.9	717.7	181.2	54.49	56.62	0.3151	5.753	5.312
5	979.1	632.9	629.7	585.7	749.8	240.0	52.54	57.92	0.5165	3.516	2.960
6	961.1	654.2	565.0	596.3	777.5	269.0	47.83	59.11	0.7145	0.621	0.264
7	937.3	657.2	483.9	597.0	802.7	274.9	41.12	58.55	0.8603	-2.284	-2.505
8	922.3	650.1	444.2	590.4	808.3	272.3	37.75	57.56	0.9080	-3.460	-3.706
9	903.6	626.2	400.6	570.8	809.9	257.6	34.07	55.19	0.9548	-4.766	-5.130
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1	PO/PO STAGE	EFF-AD STAGE %	EFF-P STAGE %
	12188.70	89.82	40.73				1.2261	0.9739	1.8117	81.77	83.22

## AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 10 POINT NO 11

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	WO-1 M/SEC	WO-2 M/SEC	U-1 M/SEC	U-2 M/SEC	V'-1 M/SEC	V'-2 M/SEC	WO'-1 M/SEC	WO'-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	171.5	301.0	169.2	195.8	28.0	228.6	274.0	282.2	298.6	203.0	-246.0	-53.6	176.02	249.36	0.0385	0.0910
2	181.3	295.4	178.5	192.9	31.4	223.7	284.5	290.0	309.8	204.0	-253.1	-66.3	186.42	248.79	0.0195	0.0757
3	183.9	289.6	180.7	188.9	34.3	219.5	294.8	297.8	317.0	204.5	-260.4	-78.3	188.59	246.17	0.0031	0.0616
4	187.6	279.7	183.2	184.0	40.7	210.6	324.2	321.2	337.5	214.7	-283.5	-110.6	190.70	246.80	-0.0417	0.0211
5	188.9	270.5	182.5	172.5	48.7	208.3	361.0	352.4	361.8	224.8	-312.3	-144.1	189.85	237.70	-0.0956	-0.0326
6	187.0	262.1	179.2	161.7	53.4	206.2	395.3	383.6	386.0	240.1	-341.9	-177.4	186.80	227.44	-0.1427	-0.0863
7	183.0	254.8	175.3	146.5	52.7	208.5	419.3	407.0	406.3	246.8	-366.5	-198.6	182.99	206.59	-0.1717	-0.1244
8	179.9	247.4	172.3	132.4	51.7	209.0	426.8	414.9	412.7	244.8	-375.1	-205.9	179.70	185.98	-0.1774	-0.1337
9	177.0	235.0	169.5	109.3	50.8	208.0	434.0	422.7	419.1	240.9	-383.3	-214.7	176.70	152.79	-0.1746	-0.1377

SL	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	M-1	M-2	M'-1	M'-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D FAC	OMEGA-B TOTAL	LOSS-P TOTAL	P02/ P01	%EFF-A TOTAL	%EFF-P TOTAL
1	9.4	49.5	55.42	15.31	0.5172	0.8675	0.9005	0.5850	-1.80	4.47	12.79	40.11	0.5268	0.0636	0.0185	1.8253	95.54	95.90
2	10.0	49.3	54.77	18.99	0.5484	0.8502	0.9371	0.5870	-0.61	5.52	11.53	35.78	0.5353	0.0898	0.0261	1.7852	93.17	93.71
3	10.8	49.3	55.23	22.55	0.5570	0.8320	0.9598	0.5525	0.47	6.46	11.73	32.68	0.5396	0.0905	0.0262	1.7697	92.78	93.33
4	12.5	48.9	57.14	31.00	0.5689	0.8009	1.0232	0.6147	2.29	7.97	10.96	26.14	0.5294	0.0662	0.0188	1.7701	94.09	94.55
5	14.9	50.3	59.71	39.76	0.5729	0.7698	1.0972	0.6398	2.74	7.63	8.61	19.94	0.5311	0.0704	0.0191	1.7833	93.11	93.64
6	16.6	51.7	62.36	47.48	0.5667	0.7407	1.1701	0.6785	3.04	7.29	6.42	14.88	0.5222	0.0851	0.0214	1.7980	91.09	91.79
7	16.8	54.8	64.48	53.44	0.5540	0.7125	1.2298	0.6901	3.04	6.54	5.89	11.04	0.5379	0.1428	0.0328	1.8056	84.85	86.05
8	16.8	57.5	65.38	57.14	0.5439	0.6879	1.2481	0.6807	3.08	6.32	7.73	8.24	0.5528	0.1772	0.0375	1.7914	81.20	82.66
9	16.7	62.2	66.18	62.92	0.5346	0.6492	1.2660	0.6656	2.71	5.70	11.89	3.26	0.5705	0.2200	0.0395	1.7535	76.52	78.28

SL	V-1	V-2	VM-1	VM-2	WO-1	WO-2	U-1	U-2	V'-1	V'-2	WO'-1	WO'-2	RHOVM-1	RHOVM-2	EPST-1	EPST-2	PCT TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN
1	562.7	987.7	555.2	642.5	91.9	750.1	899.1	925.9	979.7	666.0	-807.2	-175.7	36.05	51.07	2.204	5.213	0.0500
2	594.8	969.2	585.8	632.9	103.0	734.0	933.6	951.5	1016.3	669.2	-830.5	-217.4	38.18	50.95	1.118	4.335	0.1000
3	503.5	950.0	592.9	619.7	112.6	720.1	967.1	977.1	1040.1	670.8	-854.5	-257.0	38.63	50.42	0.176	3.530	0.1499
4	615.6	917.6	601.0	603.6	133.7	691.1	1063.8	1053.9	1107.4	704.3	-930.1	-362.8	39.06	50.55	-2.390	1.207	0.3000
5	619.8	887.5	598.8	566.1	159.7	683.5	1184.6	1156.3	1186.9	737.6	-1024.8	-472.8	38.88	48.68	-5.478	-1.867	0.5000
6	613.5	859.9	587.9	530.7	175.2	676.6	1297.1	1258.7	1266.6	787.7	-1121.9	-562.1	38.26	46.58	-8.175	-4.944	0.7000
7	600.5	835.9	575.1	480.6	173.0	684.0	1375.6	1335.5	1333.0	809.6	-1202.5	-651.6	37.48	42.31	-9.837	-7.127	0.8500
8	590.1	811.6	565.2	434.3	169.8	685.6	1400.4	1361.2	1354.2	803.1	-1230.6	-675.5	36.80	38.09	-10.163	-7.658	0.9000
9	580.6	770.9	556.2	358.7	166.6	682.4	1424.1	1386.7	1375.0	790.4	-1257.5	-704.4	36.19	31.29	-10.002	-7.891	0.9500
	WC1/AI		WC1/AI					T02/T01	P02/P01	EFF-AD		EFF-P					
	LBM/SEC		KG/SEC							ROTOR		ROTOR					
	SQFT		SQM							%		%					
	37.86		184.74							1.1995		1.7858		90.27		91.03	

AIRFOIL AERODYNAMIC SUMMARY PRINT  
 100 PERCENT DESIGN SPEED (STATOR PERFORMANCE) RUN NO 104 SPEED CODE 10 POINT NO 11

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	315.0	236.5	223.8	224.5	221.7	74.5	274.92	312.45	0.1362	0.1478
2	311.5	235.8	222.8	222.2	217.7	78.9	275.85	311.34	0.1238	0.1315
3	307.5	237.5	220.5	223.0	214.4	81.7	274.84	314.89	0.1113	0.1159
4	301.4	239.1	218.4	221.7	207.8	89.6	277.98	318.03	0.0727	0.0731
5	294.6	237.8	208.6	216.6	208.0	98.3	271.80	313.70	0.0223	0.0216
6	286.8	233.2	197.2	209.1	208.2	103.4	262.54	303.89	-0.0262	-0.0281
7	279.7	229.0	182.2	204.7	212.2	102.6	244.08	295.19	-0.0622	-0.0671
8	273.3	224.1	170.6	200.7	213.4	99.7	228.00	287.52	-0.0753	-0.0817
9	261.4	210.2	151.2	189.9	213.3	90.0	200.87	269.20	-0.0904	-0.0986

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	%EFF-A TOT-STG	%EFF-P TOT-STG
1	44.6	18.3	0.9143	0.6631	-5.59	-2.92	26.45	26.30	0.4090	0.1194	0.0406	0.9502	1.7312	1.1960	86.57	87.56
2	44.2	19.5	0.9039	0.6618	-4.38	-1.40	25.41	24.74	0.3988	0.1062	0.0366	0.9564	1.7056	1.1929	85.40	86.45
3	44.1	20.1	0.8915	0.6676	-3.85	-0.57	24.25	24.03	0.3825	0.0751	0.0264	0.9697	1.7155	1.1907	87.41	88.32
4	43.5	22.0	0.8722	0.6733	-4.63	-0.52	22.24	21.55	0.3581	0.0456	0.0168	0.9822	1.7390	1.1883	90.92	91.59
5	44.9	24.4	0.8478	0.6679	-6.87	-1.83	19.81	20.51	0.3502	0.0429	0.0167	0.9839	1.7548	1.1930	90.27	91.00
6	46.6	26.3	0.8193	0.6519	-11.62	-5.80	18.21	20.24	0.3544	0.0649	0.0266	0.9768	1.7561	1.1999	87.27	88.23
7	49.3	26.6	0.7906	0.6346	-16.40	-10.14	18.89	22.71	0.3722	0.0829	0.0354	0.9719	1.7557	1.2154	80.94	82.38
8	51.3	26.4	0.7680	0.6182	-17.51	-11.13	19.50	24.92	0.3881	0.0855	0.0372	0.9721	1.7478	1.2221	77.83	79.49
9	54.7	25.4	0.7295	0.5759	-17.19	-10.72	19.47	29.30	0.4345	0.0970	0.0432	0.9709	1.7052	1.2271	72.49	74.46

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	1033.5	776.1	734.3	736.6	727.3	244.4	56.31	63.99	0.0550	7.802	8.467
2	1022.0	773.7	730.9	729.1	714.4	258.9	56.50	63.77	0.1083	7.094	7.534
3	1009.0	779.3	723.5	731.7	703.3	268.0	56.29	64.49	0.1610	6.379	6.642
4	989.0	784.6	716.4	727.4	681.8	294.1	56.93	65.14	0.3151	4.166	4.188
5	966.7	780.3	684.5	710.6	682.6	322.5	55.67	64.25	0.5165	1.280	1.237
6	940.9	765.3	646.9	685.9	683.2	339.4	53.77	62.24	0.7145	-1.499	-1.611
7	917.7	751.3	597.8	671.6	696.2	336.7	49.99	60.46	0.8603	-3.563	-3.846
8	896.6	735.2	559.9	658.4	700.3	327.1	46.70	58.89	0.9080	-4.315	-4.681
9	857.6	689.6	495.9	623.2	699.7	295.3	41.14	55.13	0.9548	-5.181	-5.648
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1	PO/PO STAGE	EFF-AD STAGE %	EFF-P STAGE %
	12187.10	98.20	44.53				1.1995	0.9747	1.7406	85.96	87.00



## AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 106 SPEED CODE 10 POINT NO 1

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	167.1	299.4	165.7	193.1	21.4	228.8	274.3	282.4	302.3	200.4	-252.8	-53.6	173.20	250.66	0.0375	0.0909
2	177.0	293.9	175.2	190.0	25.0	224.2	284.8	290.2	313.4	201.1	-259.8	-66.0	183.85	249.66	0.0177	0.0755
3	180.4	288.5	178.1	186.0	28.1	220.6	295.0	298.0	320.9	201.5	-266.9	-77.5	186.89	246.96	0.0005	0.0616
4	184.4	278.9	181.0	179.9	35.0	213.2	324.5	321.5	341.5	210.0	-289.5	-108.3	189.49	245.57	-0.0454	0.0215
5	185.7	271.9	180.7	169.5	42.8	212.6	361.3	352.7	366.3	219.9	-318.6	-140.1	188.91	237.67	-0.1000	-0.0324
6	183.8	264.7	177.3	157.1	48.2	213.0	395.7	384.0	390.1	232.2	-347.5	-171.0	185.79	224.79	-0.1476	-0.0875
7	179.8	256.1	173.2	137.6	48.3	216.0	419.6	407.4	409.7	235.8	-371.3	-191.4	181.69	197.48	-0.1739	-0.1248
8	176.6	249.2	170.1	123.9	47.4	216.1	427.2	415.2	416.2	234.5	-379.8	-199.1	178.36	177.36	-0.1770	-0.1330
9	173.8	241.3	167.5	109.2	46.5	215.2	434.4	423.0	422.5	234.8	-387.9	-207.8	175.38	156.03	-0.1724	-0.1368

SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PO2/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	7.4	49.9	56.70	15.53	0.5031	0.8596	0.9103	0.5754	-0.52	5.75	13.01	41.17	0.5478	0.0600	0.0174	1.8622	95.83	96.18
2	8.1	49.8	55.97	19.18	0.5347	0.8426	0.9466	0.5766	0.59	6.72	11.73	36.79	0.5566	0.0874	0.0254	1.8221	93.44	93.97
3	9.0	49.9	56.26	22.64	0.5454	0.8257	0.9704	0.5766	1.51	7.49	11.82	33.62	0.5619	0.0909	0.0264	1.8069	92.84	93.41
4	10.9	49.8	58.00	31.05	0.5583	0.7950	1.0341	0.5985	3.15	8.82	11.00	26.95	0.5570	0.0763	0.0217	1.8083	93.34	93.87
5	13.3	51.3	60.46	39.47	0.5625	0.7698	1.1096	0.6226	3.49	8.38	8.32	20.99	0.5603	0.0832	0.0227	1.8349	92.12	92.76
6	15.2	53.4	62.99	47.25	0.5564	0.7433	1.1812	0.6522	3.63	7.93	6.20	15.74	0.5590	0.1052	0.0266	1.8580	89.46	90.34
7	15.6	57.4	65.04	54.14	0.5436	0.7111	1.2389	0.6547	3.60	7.10	6.59	10.90	0.5797	0.1672	0.0378	1.8621	83.09	84.49
8	15.6	60.1	65.92	57.97	0.5335	0.6881	1.2571	0.6477	3.62	6.86	8.56	7.94	0.5920	0.1973	0.0408	1.8503	80.03	81.67
9	15.5	63.0	66.69	62.19	0.5245	0.6632	1.2751	0.6453	3.21	6.20	11.16	4.50	0.5990	0.2236	0.0412	1.8339	77.33	79.17

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN
1	548.1	982.4	543.6	633.7	70.4	750.7	899.8	926.6	991.7	657.7	-829.5	-175.9	35.47	51.34	2.148	5.207	0.0500
2	580.7	964.3	574.9	623.4	82.0	735.7	934.3	952.3	1028.1	659.9	-852.4	-216.6	37.65	51.13	1.012	4.329	0.1000
3	591.8	946.7	584.5	610.2	92.3	723.7	967.9	977.9	1052.8	661.1	-875.6	-254.2	38.28	50.58	0.028	3.527	0.1499
4	604.9	915.2	594.0	590.2	114.7	699.4	1064.7	1054.8	1120.4	688.9	-950.0	-355.3	38.81	50.30	-2.601	1.230	0.3000
5	609.2	892.1	592.8	556.2	140.3	697.5	1185.5	1157.3	1201.7	721.6	-1045.3	-459.7	38.69	48.68	-5.731	-1.855	0.5000
6	602.9	868.3	581.8	515.5	158.0	698.8	1298.1	1259.8	1280.0	761.9	-1140.1	-561.0	38.05	46.04	-8.454	-5.011	0.7000
7	589.9	840.2	568.2	451.6	158.4	708.5	1376.7	1336.6	1344.3	773.6	-1218.3	-628.1	37.21	40.45	-9.961	-7.153	0.8500
8	579.5	817.5	558.3	406.6	155.4	709.1	1401.6	1362.3	1365.5	769.4	-1246.2	-653.1	36.53	36.32	-10.139	-7.622	0.9000
9	570.2	791.7	549.4	358.3	152.5	706.0	1425.3	1387.9	1386.3	770.3	-1272.8	-681.9	35.92	31.96	-9.875	-7.839	0.9500
	WC1/A1	WC1/A1							TO2/TO1	PO2/PO1	EFF-AD	EFF-P					
	LBM/SEC	KG/SEC									ROTOR	ROTOR					
	SQFT	SQM									%	%					
	37.61	183.52							1.2118	1.8362	89.45	90.31					

# AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 106 SPEED CODE 10 POINT NO 1

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	311.5	213.0	218.7	204.6	221.8	59.1	275.28	302.73	0.1375	0.1483
2	308.0	212.2	217.4	203.7	218.2	59.3	275.81	303.06	0.1263	0.1325
3	304.4	214.0	215.1	205.2	215.4	60.8	274.73	307.19	0.1149	0.1175
4	298.6	215.8	212.0	204.6	210.3	68.6	276.23	310.12	0.0786	0.0761
5	294.1	218.5	203.6	203.8	212.2	78.8	271.31	311.23	0.0301	0.0262
6	287.8	218.0	191.4	200.7	214.9	85.2	260.35	307.28	-0.0195	-0.0234
7	279.9	215.3	173.2	197.3	219.8	86.2	236.78	299.50	-0.0597	-0.0649
8	273.5	210.6	161.4	192.6	220.8	85.1	220.15	290.59	-0.0747	-0.0810
9	266.0	199.0	148.6	181.6	220.6	81.5	202.42	271.38	-0.0909	-0.0988

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	XEFF-A TOT-STG	XEFF-P TOT-STG
1	45.3	16.1	0.8998	0.5904	-4.90	-2.23	24.21	29.23	0.4966	0.1080	0.0372	0.9559	1.7783	1.2026	88.18	89.10
2	45.0	16.2	0.8892	0.5887	-3.60	-0.62	22.10	28.81	0.4936	0.0980	0.0345	0.9606	1.7496	1.1999	86.64	87.65
3	45.0	16.5	0.8780	0.5946	-2.98	0.29	20.64	28.50	0.4812	0.0722	0.0259	0.9715	1.7553	1.1982	87.93	88.84
4	44.7	18.5	0.8589	0.6003	-3.43	0.69	18.77	26.22	0.4513	0.0500	0.0188	0.9809	1.7738	1.1975	90.04	90.81
5	46.2	21.1	0.8410	0.6061	-5.60	-0.55	16.56	25.03	0.4486	0.0452	0.0180	0.9832	1.8033	1.2052	89.37	90.21
6	48.3	23.0	0.8165	0.6020	-9.89	-4.07	14.88	25.30	0.4486	0.0549	0.0231	0.9805	1.8207	1.2152	86.72	87.79
7	51.7	23.6	0.7850	0.5897	-13.99	-7.73	15.87	28.14	0.4623	0.0580	0.0254	0.9805	1.8270	1.2322	80.88	82.41
8	53.8	23.8	0.7627	0.5742	-15.03	-8.65	16.91	29.99	0.4758	0.0546	0.0243	0.9824	1.8209	1.2388	78.14	79.89
9	56.0	24.2	0.7381	0.5396	-15.82	-9.34	18.29	31.85	0.5149	0.0828	0.0372	0.9748	1.7890	1.2441	74.00	76.02

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	1022.1	698.7	717.6	671.3	727.9	193.8	56.38	62.00	0.0550	7.877	8.495
2	1010.6	696.1	713.3	668.3	715.9	194.7	56.49	62.07	0.1083	7.238	7.592
3	998.8	702.1	705.8	673.2	706.8	199.3	56.27	62.91	0.1610	6.581	6.731
4	979.6	708.1	695.4	671.4	689.9	225.1	56.57	63.51	0.3151	4.506	4.358
5	964.9	716.8	668.0	668.5	696.2	258.7	55.57	63.74	0.5165	1.727	1.500
6	944.2	715.2	628.1	658.4	705.0	279.5	53.32	62.93	0.7145	-1.115	-1.342
7	918.2	706.4	568.4	647.3	721.2	282.9	48.49	61.34	0.8603	-3.418	-3.717
8	897.2	690.9	529.5	632.0	724.3	279.2	45.09	59.52	0.9080	-4.280	-4.640
9	872.8	653.0	487.5	595.7	724.0	267.4	41.46	55.58	0.9548	-5.206	-5.663
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1 STAGE	PO/PO STAGE	EFF-AD %	EFF-P %
	12197.20	97.54	44.23				1.2118	0.9775	1.7948	85.81	86.92

## AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 106 SPEED CODE 10 POINT NO 2

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	170.6	300.0	169.2	195.0	21.6	228.0	274.3	282.4	304.1	202.4	-252.7	-54.5	175.83	252.10	0.0381	0.0907
2	180.5	294.6	178.7	191.9	25.1	223.5	284.8	290.2	315.3	203.2	-259.7	-66.7	186.37	251.20	0.0188	0.0751
3	183.8	289.1	181.7	188.7	27.9	219.0	295.0	298.0	323.1	204.5	-267.2	-79.0	189.42	249.57	0.0020	0.0607
4	188.3	278.3	185.1	182.6	34.5	210.1	324.5	321.5	344.0	213.9	-290.0	-111.4	192.54	248.22	-0.0429	0.0198
5	189.6	268.5	184.7	170.7	42.8	207.3	361.3	352.7	368.2	224.3	-318.5	-145.4	191.83	238.19	-0.0949	-0.0332
6	188.0	260.3	182.0	161.3	47.1	204.3	395.7	384.0	393.2	241.5	-348.5	-179.7	189.40	229.69	-0.1396	-0.0852
7	184.4	253.4	178.5	147.7	46.3	205.9	419.6	407.4	413.8	249.8	-373.3	-201.5	185.91	210.96	-0.1677	-0.1221
8	181.4	247.3	175.6	135.6	45.5	206.8	427.2	415.2	420.1	248.6	-381.7	-208.4	182.69	193.08	-0.1736	-0.1318
9	178.7	235.0	173.0	112.8	44.7	206.2	434.4	423.0	426.4	244.4	-389.7	-216.8	179.85	159.70	-0.1725	-0.1368

SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PO2/	%EFF-A	%EFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	7.2	49.5	56.13	15.62	0.5144	0.8618	0.9170	0.5816	-1.09	5.18	13.10	40.50	0.5429	0.0577	0.0168	1.8590	95.95	96.29
2	8.0	49.4	55.43	19.19	0.5459	0.8452	0.9535	0.5828	0.05	6.18	11.74	36.24	0.5518	0.0860	0.0250	1.8192	93.48	94.00
3	8.7	49.3	55.77	22.75	0.5566	0.8280	0.9782	0.5858	1.01	6.99	11.93	33.01	0.5539	0.0879	0.0255	1.8028	92.99	93.54
4	10.6	49.0	57.46	31.39	0.5710	0.7941	1.0432	0.6102	2.61	8.28	11.34	26.08	0.5461	0.0748	0.0212	1.7949	93.34	93.86
5	13.1	50.4	59.90	40.32	0.5751	0.7614	1.1169	0.6359	2.94	7.82	9.17	19.58	0.5453	0.0796	0.0214	1.8055	92.25	92.87
6	14.5	51.5	62.43	47.92	0.5701	0.7329	1.1923	0.6800	3.11	7.36	6.86	14.51	0.5311	0.0922	0.0230	1.8207	90.40	91.17
7	14.6	54.2	64.47	53.61	0.5585	0.7064	1.2531	0.6964	3.02	6.53	6.06	10.86	0.5423	0.1456	0.0333	1.8299	84.62	85.87
8	14.6	56.6	65.33	56.82	0.5488	0.6858	1.2710	0.6894	3.03	6.27	7.41	8.51	0.5553	0.1759	0.0376	1.8219	81.46	82.94
9	14.5	61.2	66.10	62.43	0.5401	0.6475	1.2887	0.6733	2.62	5.61	11.39	3.67	0.5735	0.2183	0.0399	1.7845	76.85	78.64

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN
1	559.8	984.2	555.3	639.7	70.8	748.0	899.9	926.6	997.9	664.2	-829.1	-178.7	36.01	51.63	2.185	5.198	0.0500
2	592.2	966.6	586.4	629.6	82.3	733.4	934.4	952.3	1034.4	666.6	-852.1	-218.9	38.17	51.45	1.077	4.304	0.1000
3	603.1	948.5	596.2	619.0	91.4	718.7	967.9	977.9	1060.1	671.1	-876.5	-259.2	38.79	51.11	0.113	3.481	0.1499
4	617.8	913.2	607.3	599.0	113.2	689.3	1064.7	1054.8	1128.8	701.7	-951.5	-365.5	39.43	50.84	-2.460	1.136	0.3000
5	622.0	881.1	605.9	560.2	140.6	680.1	1185.6	1157.3	1208.0	735.9	-1045.0	-477.2	39.29	48.78	-5.438	-1.900	0.5000
6	616.9	853.9	597.2	529.2	154.6	670.2	1298.2	1259.8	1290.1	792.3	-1143.6	-589.6	38.79	47.04	-8.001	-4.881	0.7000
7	605.1	831.4	585.7	484.4	151.9	675.6	1376.7	1336.7	1357.7	819.5	-1224.8	-661.0	38.08	43.21	-9.607	-6.999	0.8500
8	595.1	811.4	576.1	444.8	149.3	678.6	1401.6	1362.3	1378.4	815.7	-1252.3	-683.7	37.42	39.55	-9.945	-7.549	0.9000
9	586.3	771.1	567.6	370.0	146.8	676.5	1425.3	1387.9	1398.9	801.9	-1278.5	-711.4	36.84	32.71	-9.883	-7.836	0.9500
	WC1/A1		WC1/A1							TO2/TO1	PO2/PO1	EFF-AD		EFF-P			
	LBM/SEC		KG/SEC									ROTOR		ROTOR			
	SQFT		SQM							%	%			%			
	38.28		186.79							1.2059	1.8116	89.81		90.62			

# AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 106 SPEED CODE 10 POINT NO 2

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	313.8	235.1	222.8	223.2	221.0	73.7	278.08	315.14	0.1361	0.1476
2	310.6	234.8	221.7	222.6	217.6	74.4	278.78	316.39	0.1236	0.1311
3	306.9	236.4	220.0	223.8	213.9	76.0	278.57	320.46	0.1109	0.1153
4	300.0	236.9	216.8	222.0	207.3	82.6	280.02	322.32	0.0716	0.0717
5	292.6	235.9	206.6	216.6	207.1	93.3	272.95	317.21	0.0199	0.0188
6	284.8	231.6	196.2	209.1	206.4	99.6	264.83	306.96	-0.0296	-0.0317
7	278.0	227.7	182.5	204.2	209.7	100.7	247.81	297.31	-0.0653	-0.0702
8	272.6	223.7	172.3	200.2	211.3	99.7	233.49	289.69	-0.0778	-0.0842
9	261.1	211.2	153.3	188.5	211.4	95.1	206.58	270.06	-0.0918	-0.1000

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	%EFF-A TOT-STG	%EFF-P TOT-STG
1	44.7	18.2	0.9080	0.6569	-5.55	-2.88	26.36	26.43	0.4119	0.1210	0.0412	0.9500	1.7627	1.2017	87.13	88.11
2	44.4	18.4	0.8982	0.6568	-4.26	-1.28	24.35	25.91	0.4056	0.1072	0.0373	0.9564	1.7375	1.1991	85.86	86.91
3	44.1	18.7	0.8867	0.6623	-3.84	-0.57	22.88	25.40	0.3913	0.0788	0.0279	0.9685	1.7447	1.1969	87.50	88.43
4	43.6	20.4	0.8647	0.6645	-4.50	-0.39	20.62	23.29	0.3712	0.0517	0.0192	0.9801	1.7594	1.1948	89.88	90.65
5	45.0	23.3	0.8385	0.6600	-6.73	-1.68	18.71	21.75	0.3582	0.0460	0.0181	0.9830	1.7753	1.1994	89.32	90.14
6	46.5	25.5	0.8105	0.6451	-11.73	-5.91	17.36	20.98	0.3589	0.0701	0.0289	0.9754	1.7760	1.2065	86.33	87.38
7	49.0	26.2	0.7830	0.6290	-16.77	-10.51	18.51	22.73	0.3717	0.0878	0.0377	0.9707	1.7763	1.2219	80.33	81.84
8	50.8	26.5	0.7638	0.6152	-18.05	-11.67	19.56	24.31	0.3829	0.0905	0.0393	0.9709	1.7719	1.2287	77.59	79.31
9	54.1	26.8	0.7266	0.5772	-17.80	-11.32	20.88	27.28	0.4168	0.1003	0.0441	0.9702	1.7336	1.2338	72.77	74.77

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	1029.7	771.2	731.1	732.4	725.2	241.7	56.95	64.54	0.0550	7.800	8.459
2	1019.1	770.2	727.4	730.5	713.8	244.3	57.10	64.80	0.1083	7.083	7.513
3	1007.0	775.6	722.0	734.4	701.9	249.2	57.05	65.63	0.1610	6.352	6.608
4	984.2	777.2	711.4	728.5	680.1	270.9	57.35	66.01	0.3151	4.100	4.107
5	959.9	773.9	678.0	710.7	679.5	306.1	55.90	64.97	0.5165	1.141	1.076
6	934.3	759.9	643.7	686.1	677.2	326.8	54.24	62.87	0.7145	-1.696	-1.817
7	912.1	747.1	598.7	670.1	688.1	330.3	50.75	60.89	0.8603	-3.740	-4.023
8	894.5	733.9	565.3	656.9	693.2	327.2	47.82	59.33	0.9080	-4.459	-4.826
9	856.8	692.8	502.9	618.6	693.7	312.0	42.31	55.31	0.9548	-5.262	-5.729
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1	PO/PO STAGE	EFF-AD STAGE %	EFF-P STAGE %
	12197.60	99.29	45.02				1.2059	0.9736	1.7637	85.43	86.54

## AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 106 SPEED CODE 10 POINT NO 11

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2		
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN		
1	166.4	299.5	165.0	193.1	21.4	228.9	274.2	282.3	301.9	200.4	-252.8	-53.5	172.89	250.95	0.0374	0.0909		
2	176.4	294.0	174.6	190.1	24.9	224.3	284.7	290.2	313.0	201.2	-259.8	-65.9	183.56	250.19	0.0174	0.0755		
3	179.6	288.7	177.4	186.1	28.0	220.7	294.9	298.0	320.5	201.5	-266.9	-77.3	186.44	247.43	0.0000	0.0615		
4	183.4	279.0	180.0	179.7	35.1	213.5	324.4	321.4	340.8	209.6	-289.3	-107.9	188.81	245.62	-0.0464	0.0213		
5	184.5	272.5	179.3	168.3	43.8	214.3	361.2	352.6	364.6	217.8	-317.4	-138.3	187.87	236.29	-0.1013	-0.0327		
6	182.6	264.2	176.0	154.3	48.5	214.4	395.6	383.9	389.1	229.2	-347.1	-169.5	184.85	220.95	-0.1478	-0.0874		
7	178.6	256.4	172.1	136.6	48.0	217.0	419.5	407.3	409.4	234.3	-371.5	-190.3	180.95	196.26	-0.1723	-0.1239		
8	175.5	250.7	169.0	125.0	47.1	217.3	427.1	415.1	415.9	234.0	-380.0	-197.8	177.60	179.34	-0.1754	-0.1322		
9	172.7	242.6	166.4	109.7	46.2	216.4	434.3	422.9	422.3	233.8	-388.1	-206.5	174.62	157.02	-0.1715	-0.1364		
SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PO2/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE	TOTAL	TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	7.4	49.9	56.80	15.49	0.5011	0.8597	0.9091	0.5752	-0.42	5.85	12.97	41.31	0.5478	0.0598	0.0174	1.8629	95.86	96.20
2	8.1	49.8	56.07	19.13	0.5326	0.8430	0.9454	0.5768	0.69	6.82	11.68	36.94	0.5561	0.0861	0.0251	1.8238	93.55	94.07
3	9.0	49.9	56.38	22.58	0.5429	0.8262	0.9690	0.5766	1.63	7.61	11.75	33.81	0.5616	0.0896	0.0260	1.8091	92.96	93.52
4	11.0	49.9	58.13	30.99	0.5552	0.7953	1.0316	0.5974	3.27	8.95	10.94	27.13	0.5574	0.0744	0.0211	1.8104	93.52	94.04
5	13.7	51.8	60.57	39.31	0.5589	0.7714	1.1040	0.6166	3.60	8.49	8.16	21.25	0.5648	0.0820	0.0224	1.8401	92.29	92.92
6	15.4	54.1	63.14	47.51	0.5525	0.7413	1.1777	0.6432	3.83	8.07	6.45	15.63	0.5667	0.1118	0.0281	1.8580	88.88	89.80
7	15.6	57.7	65.19	54.19	0.5400	0.7115	1.2375	0.6501	3.74	7.25	6.63	11.00	0.5842	0.1711	0.0386	1.8666	82.82	84.25
8	15.6	60.0	66.06	57.58	0.5298	0.6922	1.2558	0.6461	3.76	7.00	8.17	8.48	0.5942	0.1973	0.0413	1.8614	80.21	81.85
9	15.5	63.0	66.83	61.93	0.5209	0.6666	1.2738	0.6423	3.36	6.34	10.90	4.90	0.6025	0.2248	0.0417	1.8440	77.39	79.24
SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE	
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN	
1	546.0	982.5	541.5	633.5	70.1	751.0	899.6	926.4	990.6	657.4	-829.5	-175.4	35.41	51.40	2.140	5.205	0.0500	
2	578.6	964.8	572.8	623.8	81.7	736.0	934.1	952.0	1027.0	660.1	-852.4	-216.1	37.59	51.24	0.995	4.326	0.1000	
3	589.2	947.2	582.0	610.6	91.9	724.2	967.7	977.6	1051.5	661.1	-875.8	-253.5	38.18	50.68	0.002	3.524	0.1499	
4	601.8	915.4	590.6	589.5	115.2	700.3	1064.4	1054.5	1118.0	687.7	-949.3	-354.2	38.67	50.31	-2.661	1.220	0.3000	
5	605.5	894.0	588.2	552.1	143.8	703.2	1185.2	1157.0	1196.1	714.6	-1041.5	-453.8	38.48	48.39	-5.804	-1.875	0.5000	
6	599.0	866.7	577.5	506.4	159.1	703.4	1297.8	1259.5	1276.8	752.1	-1138.7	-556.1	37.86	45.25	-8.465	-5.009	0.7000	
7	586.1	841.2	564.6	448.2	157.5	711.8	1376.4	1336.3	1343.3	768.6	-1218.9	-624.4	37.06	40.20	-9.872	-7.100	0.8500	
8	575.7	822.5	554.6	410.2	154.4	712.9	1401.2	1361.9	1364.6	767.8	-1246.8	-649.0	36.37	36.73	-10.049	-7.577	0.9000	
9	566.5	796.1	545.8	359.8	151.6	710.1	1424.9	1387.5	1385.4	767.1	-1273.4	-677.4	35.76	32.16	-9.828	-7.818	0.9500	
	WCI/A1		WCI/A1							T02/T01	P02/P01	EFF-AD	EFF-P					
	LBM/SEC		KG/SEC									ROTOR	ROTOR					
	SQFT		SQM									%	%					
	37.43		182.67							1.2127	1.8395	89.38	90.25					

# AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 106 SPEED CODE 10 POINT NO 11

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	311.2	212.8	218.2	204.2	221.9	59.9	275.28	302.93	0.1374	0.1484
2	307.8	212.0	217.0	202.2	218.3	63.7	276.00	301.60	0.1264	0.1328
3	304.2	213.6	214.7	203.1	215.5	66.2	274.82	304.79	0.1153	0.1179
4	298.2	215.1	211.2	202.5	210.5	72.7	275.90	307.65	0.0801	0.0772
5	294.2	217.9	202.0	201.6	213.9	82.5	269.90	308.84	0.0322	0.0277
6	287.0	217.8	188.7	198.8	216.3	88.8	256.96	305.45	-0.0180	-0.0223
7	279.9	215.6	171.9	196.6	220.9	88.6	235.36	299.46	-0.0592	-0.0646
8	270.7	211.1	161.9	192.8	222.0	85.9	221.43	291.89	-0.0744	-0.0809
9	267.2	200.0	148.7	182.6	222.0	81.6	203.02	273.88	-0.0907	-0.0987

SL	B-1	B-2	M-1	M-2	INCS	INCM	DEV	TURN	D-FAC	OMEGA-B	LOSS-P	PO2/	PO/PO	TO/TO	%EFF-A	%EFF-P
	DEGREE	DEGREE			DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	STAGE	STAGE	TOT-STG	TOT-STG
1	45.4	16.3	0.8988	0.5900	-4.83	-2.16	24.46	29.05	0.4957	0.1061	0.0365	0.9567	1.7805	1.2027	88.36	89.26
2	45.1	17.4	0.8885	0.5882	-3.55	-0.57	23.34	27.63	0.4886	0.0971	0.0339	0.9611	1.7520	1.2000	86.83	87.82
3	45.0	18.0	0.8772	0.5935	-2.91	0.37	22.20	27.01	0.4753	0.0721	0.0257	0.9716	1.7576	1.1984	88.07	88.97
4	44.9	19.7	0.8577	0.5982	-3.29	0.82	20.00	25.13	0.4577	0.0499	0.0186	0.9810	1.7758	1.1975	90.23	90.98
5	46.6	22.3	0.8411	0.6041	-5.15	-0.10	17.67	24.38	0.4478	0.0476	0.0188	0.9823	1.8065	1.2057	89.44	90.27
6	48.9	24.1	0.8136	0.6010	-9.29	-3.47	15.96	24.83	0.4445	0.0460	0.0192	0.9837	1.8265	1.2164	86.72	87.79
7	52.1	24.3	0.7844	0.5901	-13.65	-7.39	16.52	27.84	0.4587	0.0492	0.0215	0.9835	1.8356	1.2339	80.97	82.51
8	53.9	24.0	0.7660	0.5752	-14.97	-8.59	17.09	29.86	0.4769	0.0557	0.0247	0.9820	1.8302	1.2408	78.24	79.99
9	56.2	24.1	0.7409	0.5419	-15.68	-9.21	18.21	32.07	0.5157	0.0807	0.0363	0.9753	1.8001	1.2463	74.20	76.22

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	PCT TE	EPSI-1	EPSI-2
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	SPAN	DEGREE	DEGREE
1	1021.2	698.3	716.0	670.0	728.1	196.6	56.38	62.04	0.0550	7.875	8.501
2	1010.0	695.6	712.1	663.4	716.2	208.9	56.53	61.77	0.1083	7.243	7.607
3	998.1	700.9	704.4	666.4	707.2	217.3	56.29	62.42	0.1610	6.604	6.758
4	978.4	705.8	693.0	664.3	690.7	238.6	56.51	63.01	0.3151	4.591	4.425
5	965.3	714.8	662.8	661.5	701.8	270.8	55.28	63.25	0.5165	1.847	1.588
6	941.8	714.5	619.1	652.3	709.7	291.4	52.63	62.56	0.7145	-1.030	-1.279
7	918.3	707.4	564.0	644.9	724.7	290.6	48.20	61.33	0.8603	-3.394	-3.704
8	901.4	692.5	531.2	632.5	728.3	281.8	45.35	59.78	0.9080	-4.265	-4.634
9	876.5	656.1	487.9	599.0	728.2	267.8	41.58	56.09	0.9548	-5.195	-5.656
	NCORR	WCORR	WCORR				TO/TO	PO2/PO1	PO/PO	EFF-AD	EFF-P
	INLET	INLET	INLET				STAGE		STAGE	STAGE	STAGE
	RPM	LBM/SEC	KG/SEC							%	%
	12194.20	97.09	44.03				1.2127	0.9783	1.7996	85.89	87.00

## AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 106 SPEED CODE 10 POINT NO 12

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2		
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN		
1	158.5	299.7	157.3	192.2	20.1	230.0	274.2	282.3	298.8	199.2	-254.1	-52.3	167.17	250.61	0.0362	0.0908		
2	167.7	294.4	166.1	189.0	23.4	225.7	284.7	290.1	309.6	199.7	-261.3	-64.5	177.14	249.44	0.0150	0.0754		
3	170.8	289.3	168.7	184.9	26.2	222.6	294.9	297.9	317.3	199.7	-268.7	-75.4	179.91	246.39	-0.0036	0.0614		
4	174.9	282.1	171.6	178.0	33.6	218.9	324.4	321.4	337.7	205.4	-290.8	-102.5	182.73	243.74	-0.0535	0.0211		
5	175.4	278.6	170.2	166.2	42.3	223.6	361.2	352.6	361.5	210.4	-318.9	-129.0	181.20	233.66	-0.1140	-0.0353		
6	172.7	270.0	166.1	146.2	47.3	227.1	395.5	383.8	385.8	214.4	-348.3	-156.8	177.39	208.89	-0.1648	-0.0940		
7	168.2	261.7	161.7	123.1	46.3	230.9	419.5	407.3	406.7	215.1	-373.1	-176.3	173.05	176.34	-0.1874	-0.1304		
8	164.9	256.1	158.5	110.5	45.4	231.1	427.0	415.1	413.3	214.6	-381.7	-184.0	169.57	158.19	-0.1877	-0.1369		
9	162.1	249.6	155.9	96.9	44.5	230.0	434.3	422.9	419.8	215.8	-389.7	-192.8	166.59	138.83	-0.1788	-0.1388		
SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	P02/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	P01	TOTAL	TOTAL
1	7.3	50.1	58.18	15.25	0.4763	0.8597	0.8977	0.5714	0.96	7.24	12.73	42.93	0.5495	0.0723	0.0211	1.8656	95.09	95.50
2	8.0	50.1	57.53	18.86	0.5053	0.8430	0.9327	0.5719	2.15	8.27	11.41	38.67	0.5592	0.0954	0.0278	1.8315	93.02	93.59
3	8.8	50.3	57.86	22.21	0.5148	0.8269	0.9567	0.5706	3.11	9.09	11.39	35.65	0.5670	0.1008	0.0293	1.8189	92.27	92.89
4	11.1	50.9	59.48	29.93	0.5279	0.8026	1.0194	0.5843	4.63	10.30	9.88	29.55	0.5730	0.0926	0.0266	1.8316	92.19	92.83
5	14.0	53.3	61.97	37.73	0.5295	0.7862	1.0915	0.5938	5.00	9.89	6.58	24.24	0.5926	0.1067	0.0298	1.8793	90.40	91.21
6	15.9	57.1	64.59	46.85	0.5209	0.7534	1.1640	0.5980	5.28	9.53	5.80	17.74	0.6161	0.1587	0.0404	1.8969	85.04	86.31
7	16.1	61.8	66.67	54.96	0.5067	0.7206	1.2251	0.5923	5.23	8.73	7.41	11.71	0.6440	0.2273	0.0504	1.9058	78.49	80.33
8	16.0	64.4	67.53	58.91	0.4963	0.7019	1.2438	0.5881	5.23	8.47	9.49	8.62	0.6533	0.2519	0.0508	1.9013	76.20	78.23
9	16.0	67.1	68.26	63.23	0.4875	0.6810	1.2623	0.5888	4.79	7.77	12.20	5.03	0.6574	0.2739	0.0487	1.8903	74.12	76.31
SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT	TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN	
1	520.2	983.4	516.0	630.7	65.9	754.6	899.6	926.3	980.4	653.7	-833.7	-171.8	34.24	51.33	2.074	5.201	0.0500	
2	550.4	965.8	545.0	620.7	76.6	740.4	934.0	952.0	1015.9	655.2	-857.4	-211.5	36.28	51.09	0.859	4.323	0.1000	
3	560.3	949.3	553.6	606.6	85.9	730.2	967.6	977.5	1041.1	655.1	-881.7	-247.3	36.85	50.46	-0.208	3.519	0.1459	
4	573.7	925.6	563.1	584.0	110.2	718.1	1064.3	1054.4	1107.9	673.9	-954.1	-336.3	37.43	49.92	-3.068	1.210	0.3000	
5	575.4	913.9	558.4	545.2	138.8	733.5	1185.1	1156.9	1186.0	690.3	-1046.4	-423.4	37.11	47.86	-6.529	-2.020	0.5000	
6	566.5	886.0	544.9	479.6	155.1	745.0	1297.7	1259.4	1265.9	703.3	-1142.6	-514.4	36.33	42.78	-9.440	-5.388	0.7000	
7	551.8	858.5	530.5	403.9	152.0	757.6	1376.3	1336.2	1334.3	705.6	-1224.3	-578.6	35.44	36.12	-10.738	-7.472	0.8500	
8	541.0	840.4	520.1	362.5	148.9	758.2	1401.1	1361.8	1356.0	704.1	-1252.2	-603.6	34.73	32.40	-10.753	-7.845	0.9000	
9	531.9	819.0	511.4	318.0	146.1	754.8	1424.8	1387.4	1377.2	708.1	-1278.7	-632.7	34.12	28.43	-10.244	-7.953	0.9500	
	WC1/A1		WC1/A1						TO2/TO1	P02/P01	EFF-AD	EFF-P						
	LBM/SEC		KG/SEC								ROTOR	ROTOR						
	SOFT		SQM								%	%						
	35.99		175.63						1.2242	1.8689	87.17	88.24						

# AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 106 SPEED CODE 10 POINT NO 12

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	308.8	195.1	213.7	187.9	223.0	52.6	272.30	288.20	0.1390	0.1496
2	305.3	193.6	212.2	185.7	219.6	54.9	272.55	285.98	0.1296	0.1353
3	301.8	194.6	209.5	185.8	217.2	57.8	270.91	287.49	0.1202	0.1218
4	297.8	197.5	205.6	185.0	215.5	69.2	271.14	289.10	0.0906	0.0851
5	296.8	203.4	196.3	187.1	222.6	79.8	264.62	294.38	0.0488	0.0407
6	289.6	207.4	178.1	188.9	228.4	85.6	243.91	298.16	-0.0015	-0.0078
7	282.2	206.9	156.7	187.9	234.7	86.5	215.43	293.74	-0.0484	-0.0539
8	277.3	203.2	145.8	185.1	235.8	83.9	200.35	287.56	-0.0666	-0.0727
9	270.9	194.1	133.3	178.4	235.9	76.4	183.15	274.85	-0.0865	-0.0942

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	%EFF-A TOT-STG	%EFF-P TOT-STG
1	46.1	15.6	0.8898	0.5374	-4.09	-1.42	23.74	30.52	0.5591	0.1020	0.0352	0.9590	1.7890	1.2050	88.16	89.08
2	45.9	16.5	0.8791	0.5336	-2.72	0.26	22.35	29.44	0.5570	0.0978	0.0344	0.9613	1.7611	1.2028	86.49	87.51
3	46.0	17.2	0.8679	0.5366	-1.97	1.30	21.42	28.73	0.5470	0.0791	0.0283	0.9693	1.7630	1.2019	87.08	88.06
4	46.3	20.5	0.8536	0.5447	-1.82	2.30	20.76	25.84	0.5261	0.0671	0.0250	0.9745	1.7821	1.2039	87.97	88.90
5	48.6	23.1	0.8448	0.5589	-3.17	1.88	18.50	25.52	0.5150	0.0714	0.0281	0.9733	1.8246	1.2162	86.63	87.71
6	52.1	24.4	0.8154	0.5668	-6.13	-0.31	16.26	27.68	0.5070	0.0470	0.0196	0.9832	1.8624	1.2311	84.07	85.39
7	56.2	24.7	0.7841	0.5600	-9.50	-3.24	16.96	31.55	0.5201	0.0400	0.0174	0.9865	1.8793	1.2533	77.92	79.78
8	58.2	24.4	0.7664	0.5477	-10.60	-4.22	17.44	33.89	0.5378	0.0439	0.0194	0.9857	1.8779	1.2613	75.43	77.49
9	60.5	23.2	0.7452	0.5203	-11.34	-4.86	17.30	37.32	0.5792	0.0617	0.0280	0.9808	1.8564	1.2682	72.02	74.32

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	1013.2	640.2	701.1	616.5	731.5	172.5	55.77	59.03	0.0550	7.966	8.573
2	1001.8	635.3	696.2	609.2	720.4	180.3	55.82	58.57	0.1083	7.428	7.752
3	990.3	638.4	687.5	609.6	712.8	189.5	55.48	58.88	0.1610	6.887	6.979
4	977.2	648.1	674.5	607.0	707.1	227.1	55.53	59.21	0.3151	5.193	4.877
5	973.6	667.4	644.0	614.0	730.3	261.7	54.20	60.29	0.5165	2.798	2.329
6	950.3	680.4	584.2	619.7	749.4	280.8	49.95	61.07	0.7145	-0.085	-0.447
7	925.8	678.7	514.2	616.6	769.9	283.7	44.12	60.16	0.8603	-2.773	-3.088
8	909.7	666.7	478.3	607.3	773.7	275.2	41.03	58.90	0.9080	-3.815	-4.168
9	889.0	636.8	437.3	585.3	773.9	250.8	37.51	56.29	0.9548	-4.956	-5.395
	NCORR RPM	WCORR INLET	WCORR INLET	WCORR INLET			TO/TO STAGE	PO2/PO1	PO/PO STAGE	EFF-AD STAGE	EFF-P STAGE
	12193.20	93.35	42.33				1.2242	0.9762	1.8244	83.52	84.84



## AIRFOIL AERODYNAMIC SUMMARY PRINT

95 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 95 POINT NO 2

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2		
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN		
1	161.9	289.6	160.0	194.3	24.9	214.8	260.3	268.1	284.6	201.5	-235.4	-53.3	169.46	246.12	0.0374	0.0902		
2	171.2	283.7	168.7	189.1	29.0	211.4	270.3	275.5	294.4	199.7	-241.3	-64.1	179.36	242.01	0.0176	0.0743		
3	173.7	277.9	170.8	185.5	31.5	206.9	280.0	282.9	301.6	200.4	-248.5	-76.0	181.51	239.49	0.0006	0.0597		
4	176.9	267.8	172.7	181.0	38.1	197.4	308.0	305.1	320.5	210.7	-269.9	-107.7	183.24	239.76	-0.0458	0.0179		
5	177.6	258.4	171.0	167.9	47.9	196.4	343.0	334.8	341.0	217.6	-295.1	-138.4	181.42	227.41	-0.1010	-0.0370		
6	175.4	248.6	167.4	155.3	52.3	194.2	375.5	364.4	364.1	230.4	-323.3	-170.2	178.09	213.58	-0.1470	-0.0904		
7	171.5	241.8	163.7	141.0	51.3	196.5	398.3	386.7	383.6	236.7	-347.0	-190.2	174.38	194.16	-0.1738	-0.1267		
8	168.4	234.8	160.7	127.6	50.3	197.1	405.4	394.1	389.8	234.7	-355.1	-197.0	171.15	175.10	-0.1788	-0.1352		
9	165.6	222.7	158.1	106.0	49.4	195.8	412.3	401.5	395.9	231.4	-362.9	-205.7	168.19	144.68	-0.1754	-0.1385		
SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PC2/ PO1	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL		TOTAL	TOTAL
1	8.8	47.9	55.74	15.35	0.4868	0.8380	0.8558	0.5829	-1.48	4.79	12.83	40.39	0.4975	0.0397	0.0115	1.7394	97.16	97.37
2	9.7	48.2	55.01	18.73	0.5162	0.8194	0.8879	0.5768	-0.37	5.76	11.28	36.27	0.5153	0.0760	0.0222	1.7005	94.14	94.56
3	10.4	48.2	55.49	22.33	0.5242	0.8014	0.9100	0.5781	0.73	6.71	11.49	33.18	0.5194	0.0783	0.0228	1.6847	93.63	94.08
4	12.4	47.5	57.40	30.75	0.5344	0.7705	0.9681	0.6061	2.54	8.22	10.70	26.65	0.5063	0.0509	0.0145	1.6795	95.33	95.66
5	15.7	49.4	59.92	39.40	0.5366	0.7393	1.0305	0.6226	2.96	7.84	8.24	20.53	0.5128	0.0567	0.0155	1.6835	94.29	94.70
6	17.4	51.2	62.65	47.47	0.5296	0.7065	1.0992	0.6548	3.34	7.58	6.42	15.17	0.5095	0.0835	0.0210	1.6842	90.97	91.61
7	17.4	54.2	64.79	53.32	0.5172	0.6805	1.1570	0.6663	3.35	6.85	5.76	11.48	0.5265	0.1443	0.0333	1.6895	84.25	85.36
8	17.4	57.0	65.70	56.95	0.5074	0.6573	1.1745	0.6571	3.40	6.64	7.53	8.76	0.5420	0.1792	0.0381	1.6770	80.45	81.81
9	17.4	61.5	66.51	62.65	0.4985	0.6197	1.1917	0.6439	3.04	6.02	11.62	3.86	0.5589	0.2209	0.0401	1.6427	75.72	77.34
SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE	SPAN
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE		
1	531.2	950.2	524.8	637.5	81.7	704.7	854.1	879.5	933.8	661.0	-772.4	-174.8	34.71	50.41	2.141	5.166	0.0500	
2	561.7	930.7	553.6	620.6	95.1	693.7	886.8	903.8	966.1	655.2	-791.7	-210.2	36.73	49.57	1.009	4.254	0.1000	
3	569.9	911.6	560.4	608.6	103.3	678.8	918.7	928.1	989.4	657.7	-815.4	-249.3	37.17	49.05	0.036	3.422	0.1499	
4	580.4	878.8	566.8	594.0	124.9	647.6	1010.5	1001.1	1051.4	691.2	-885.6	-353.5	37.53	49.10	-2.625	1.023	0.3000	
5	582.7	847.7	561.1	550.9	157.1	644.3	1125.2	1098.4	1119.0	713.9	-968.1	-454.1	37.16	46.58	-5.787	-2.120	0.5000	
6	575.4	815.8	549.3	509.4	171.4	637.1	1232.1	1195.7	1194.5	756.0	-1060.7	-558.6	36.48	43.74	-8.425	-5.180	0.7000	
7	562.7	793.4	537.0	462.5	168.2	644.6	1306.7	1268.6	1258.7	776.8	-1138.5	-624.0	35.71	39.76	-9.960	-7.260	0.8500	
8	552.6	770.4	527.4	418.8	165.0	646.6	1330.3	1293.0	1279.0	770.2	-1165.2	-646.4	35.05	35.86	-10.246	-7.746	0.9000	
9	543.3	730.6	518.6	347.8	162.0	642.5	1352.8	1317.3	1298.8	759.1	-1190.8	-674.7	34.45	29.63	-10.047	-7.936	0.9500	
	WCI/A1		WCI/A1							T02/T01	P02/P01	EFF-AD	EFF-P					
	LBM/SEC		KG/SEC									ROTOR	ROTOR					
	SQFT		SQM									%	%					
	36.17		176.52							1.1769	1.6851	90.84	91.49					

# AIRFOIL AERODYNAMIC SUMMARY PRINT

95 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

\* RUN NO 104 SPEED CODE 95 POINT NO 2

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	304.2	237.8	221.8	226.9	208.2	71.4	270.85	305.55	0.1365	0.1485
2	300.3	237.8	218.8	225.5	205.7	75.3	268.74	305.85	0.1241	0.1326
3	296.3	239.1	216.7	226.2	202.1	77.6	267.66	309.08	0.1112	0.1172
4	289.6	237.4	214.4	222.2	194.7	83.6	269.86	307.96	0.0722	0.0750
5	281.8	233.9	202.4	215.4	196.1	91.3	260.13	301.02	0.0215	0.0236
6	272.1	227.6	188.7	204.2	196.1	100.6	246.92	285.80	-0.0274	-0.0268
7	265.1	224.0	174.1	198.6	200.0	103.5	228.82	275.99	-0.0630	-0.0664
8	259.0	219.4	162.9	195.1	201.3	100.3	213.59	269.45	-0.0759	-0.0813
9	247.3	205.6	144.4	183.2	200.8	93.4	188.43	250.49	-0.0907	-0.0984

SL	B-1	B-2	M-1	M-2	INCS	INCM	DEV	TURN	D-FAC	OMEGA-B	LOSS-P	PO2/	PO/PO	TO/TO	XEFF-A	XEFF-P
	DEGREE	DEGREE			DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	STAGE	STAGE	TOT-STG	TOT-STG
1	43.1	17.4	0.8866	0.6731	-7.12	-4.45	25.57	25.65	0.3720	0.1224	0.0419	0.9511	1.6515	1.1761	87.47	88.32
2	43.1	18.4	0.8746	0.6738	-5.48	-2.50	24.33	24.71	0.3598	0.0983	0.0342	0.9615	1.6332	1.1737	86.60	87.49
3	42.9	18.9	0.8621	0.6787	-5.04	-1.76	23.06	24.02	0.3434	0.0651	0.0230	0.9750	1.6421	1.1714	88.81	89.56
4	42.2	20.6	0.8416	0.6746	-5.96	-1.85	20.86	21.60	0.3285	0.0467	0.0173	0.9827	1.6506	1.1675	91.87	92.42
5	44.1	23.0	0.8149	0.6630	-7.69	-2.65	18.38	21.12	0.3270	0.0486	0.0191	0.9828	1.6546	1.1702	90.88	91.50
6	46.1	26.2	0.7810	0.6417	-12.07	-6.26	18.11	19.89	0.3249	0.0682	0.0279	0.9774	1.6460	1.1762	86.83	87.72
7	49.0	27.5	0.7533	0.6265	-16.78	-10.52	19.78	21.45	0.3334	0.0825	0.0350	0.9740	1.6467	1.1907	80.27	81.60
8	51.0	27.2	0.7319	0.6109	-17.84	-11.46	20.27	23.82	0.3496	0.0861	0.0372	0.9739	1.6397	1.1971	76.96	78.49
9	54.3	27.0	0.6946	0.5691	-17.58	-11.11	21.14	27.24	0.3886	0.0985	0.0432	0.9728	1.5996	1.2010	71.43	73.23

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	PCT TE	EPSI-1	EPSI-2
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	SPAN	DEGREE	DEGREE
1	998.1	780.3	727.6	744.3	683.2	234.3	55.47	62.58	0.0550	7.821	8.509
2	985.4	780.2	717.9	740.0	675.1	247.2	55.04	62.64	0.1083	7.109	7.597
3	972.2	784.6	711.1	742.2	662.9	254.5	54.82	63.30	0.1610	6.370	6.713
4	950.3	779.0	703.4	729.1	639.0	274.4	55.27	63.07	0.3151	4.135	4.296
5	924.6	767.6	664.0	706.7	643.4	299.6	53.28	61.65	0.5165	1.231	1.354
6	892.8	746.7	619.0	669.9	643.4	329.9	50.57	58.53	0.7145	-1.568	-1.535
7	869.9	734.8	571.1	651.7	656.2	339.5	46.87	56.52	0.8603	-3.608	-3.807
8	849.7	719.7	534.4	640.2	660.6	328.9	43.74	55.19	0.9080	-4.348	-4.655
9	811.5	674.7	473.8	601.0	658.9	306.5	38.59	51.30	0.9548	-5.199	-5.635
	NCORR	WCORR	WCORR				TO/TO	PO2/PO1	PO/PO	EFF-A	EFF-P
	INLET	INLET	INLET				STAGE		STAGE	STAGE	STAGE
	RPM	LBM/SEC	KG/SEC							%	%
	11576.70	93.83	42.55				1.1769	0.9759	1.6445	86.29	87.21

## AIRFOIL AERODYNAMIC SUMMARY PRINT

95 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 95 POINT NO 6

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	158.2	287.5	156.0	188.2	26.2	217.3	260.4	268.1	281.4	194.9	-234.2	-50.8	166.39	239.76	0.0376	0.0907
2	167.2	281.7	164.6	184.4	29.5	213.0	270.3	275.5	291.7	194.7	-240.8	-62.5	176.14	237.42	0.0179	0.0753
3	169.6	275.6	166.6	180.8	31.5	208.0	280.1	282.9	299.2	195.7	-248.5	-74.9	178.26	235.01	0.0008	0.0612
4	172.7	265.9	163.6	177.0	37.1	198.5	308.0	305.2	319.1	206.7	-270.9	-106.7	180.09	236.04	-0.0457	0.0202
5	173.6	257.9	167.5	165.3	45.8	197.9	343.0	334.8	341.2	214.6	-297.3	-136.9	178.82	225.53	-0.1015	-0.0344
6	171.6	249.4	163.8	151.2	51.0	198.3	375.6	364.5	363.6	224.7	-324.6	-166.2	175.39	209.62	-0.1479	-0.0887
7	167.8	242.4	160.0	134.1	50.7	201.9	398.3	386.7	382.7	228.3	-347.6	-184.8	171.51	186.27	-0.1719	-0.1244
8	161.8	237.2	157.1	123.4	49.8	202.5	405.5	394.2	388.9	227.9	-355.7	-191.6	168.35	171.00	-0.1750	-0.1325
9	162.1	229.2	154.6	108.4	48.9	201.9	412.4	401.6	395.0	227.2	-363.5	-199.7	165.50	149.90	-0.1713	-0.1366

SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	P02/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	P01	TOTAL	TOTAL
1	9.5	49.1	56.27	15.11	0.4750	0.8305	0.8452	0.5631	-0.95	5.33	12.59	41.16	0.5163	0.0515	0.0150	1.7391	96.41	96.67
2	10.2	49.2	55.62	18.76	0.5035	0.8126	0.8785	0.5615	0.24	6.37	11.30	36.86	0.5290	0.0809	0.0236	1.7036	93.89	94.33
3	10.7	49.0	56.15	22.54	0.5111	0.7937	0.9018	0.5637	1.39	7.37	11.72	33.61	0.5324	0.0835	0.0242	1.6875	93.33	93.80
4	12.4	48.3	58.12	31.08	0.5209	0.7636	0.9628	0.5935	3.27	8.94	11.03	27.04	0.5188	0.0574	0.0163	1.6062	94.83	95.20
5	15.3	50.0	60.63	39.53	0.5239	0.7362	1.0296	0.6128	3.56	8.55	8.38	21.10	0.5255	0.0648	0.0176	1.6984	93.62	94.08
6	17.3	52.5	63.25	47.54	0.5175	0.7066	1.0965	0.6366	3.94	8.18	6.49	15.71	0.5299	0.0953	0.0240	1.7067	90.02	90.74
7	17.6	56.3	65.33	53.88	0.5055	0.6799	1.1527	0.6404	3.88	7.39	6.33	11.44	0.5529	0.1602	0.0364	1.7132	83.15	84.37
8	17.6	58.5	66.21	57.10	0.4961	0.6620	1.1704	0.6362	3.91	7.15	7.69	9.11	0.5643	0.1881	0.0399	1.7084	80.25	81.67
9	17.6	61.7	66.99	61.41	0.4876	0.6367	1.1877	0.6312	3.52	6.50	10.37	5.58	0.5747	0.2182	0.0412	1.6915	77.04	78.66

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN
1	518.9	943.3	511.7	617.5	85.9	713.1	854.2	879.7	923.2	639.6	-768.4	-166.6	34.08	49.10	2.152	5.199	0.0500
2	548.6	924.3	540.0	604.9	96.8	698.9	887.0	904.0	957.0	638.7	-790.1	-205.1	36.07	48.63	1.023	4.314	0.1000
3	556.4	904.3	546.7	593.3	103.5	682.4	918.9	928.3	981.7	642.2	-815.4	-245.9	36.51	48.13	0.017	3.505	0.1499
4	566.5	872.6	553.3	580.8	121.7	651.1	1010.7	1001.3	1047.1	678.2	-889.0	-350.2	36.88	48.34	-2.620	1.160	0.3000
5	569.6	846.1	549.4	542.3	150.1	649.4	1125.4	1098.6	1119.4	704.2	-975.3	-449.2	36.62	46.19	-5.815	-1.972	0.5000
6	563.0	818.1	537.5	496.1	167.4	650.6	1232.4	1195.9	1192.9	737.2	-1065.0	-545.3	35.92	42.93	-8.472	-5.062	0.7000
7	550.6	795.4	524.9	440.1	166.4	662.5	1306.9	1268.9	1255.5	749.2	-1140.6	-606.3	35.13	38.15	-9.850	-7.128	0.8500
8	540.8	778.1	515.5	404.8	163.4	664.5	1330.5	1293.2	1275.9	747.8	-1167.1	-628.7	34.48	35.02	-10.024	-7.592	0.9000
9	532.0	751.9	507.2	355.7	160.6	662.5	1353.1	1317.5	1295.9	745.4	-1192.5	-655.1	33.90	30.70	-9.813	-7.825	0.9500

	WC1/A1	WC1/A1																
	LBM/SEC	KG/SEC																
	SQFT	SQM																
	35.57	173.60																

	T02/T01	P02/P01	EFF-AD	EFF-P
			ROTOR	ROTOR
			%	%
	1.1816	1.7008	90.22	90.92

# AIRFOIL AERODYNAMIC SUMMARY PRINT

95 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 104 SPEED CODE 95 POINT NO 6

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	299.9	215.9	213.3	208.6	210.7	55.5	263.63	294.01	0.1369	0.1482
2	296.1	215.3	211.4	206.7	207.3	60.3	262.94	292.95	0.1252	0.1323
3	291.7	216.8	209.4	207.9	203.1	61.5	261.92	296.67	0.1131	0.1171
4	285.5	217.2	207.9	206.2	195.8	68.0	264.99	298.11	0.0760	0.0755
5	279.6	216.4	197.8	201.2	197.6	79.7	257.25	293.10	0.0281	0.0261
6	271.8	213.8	183.9	196.3	200.1	84.8	243.19	286.57	-0.0207	-0.0235
7	265.1	210.4	167.4	192.2	205.6	85.7	222.22	278.05	-0.0602	-0.0651
8	260.3	206.4	158.0	189.1	206.9	82.7	209.44	272.01	-0.0748	-0.0810
9	252.9	195.4	145.1	181.6	207.1	72.2	191.96	258.93	-0.0907	-0.0987

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	XEFF-A TOT-STG	XEFF-P TOT-STG
1	44.5	14.9	0.8715	0.6058	-5.67	-3.00	23.00	29.68	0.4586	0.1125	0.0390	0.9561	1.6606	1.1775	87.85	88.68
2	44.3	16.2	0.8599	0.6048	-4.28	-1.30	22.12	28.13	0.4477	0.0960	0.0338	0.9633	1.6397	1.1749	86.77	87.65
3	44.0	16.4	0.8465	0.6100	-3.90	-0.62	20.62	27.60	0.4322	0.0628	0.0225	0.9765	1.6475	1.1726	88.80	89.56
4	43.2	18.2	0.8273	0.6118	-4.92	-0.81	18.49	25.01	0.4132	0.0403	0.0152	0.9854	1.6518	1.1698	91.95	92.50
5	45.0	21.6	0.8059	0.6083	-6.82	-1.77	17.01	23.37	0.4042	0.0386	0.0153	0.9866	1.6755	1.1743	91.12	91.74
6	47.4	23.4	0.7775	0.5983	-10.76	-4.94	15.26	24.05	0.4074	0.0426	0.0178	0.9859	1.6823	1.1823	87.87	88.72
7	50.8	24.0	0.7505	0.5840	-14.90	-8.64	16.30	26.80	0.4256	0.0550	0.0240	0.9828	1.6838	1.1986	80.81	82.16
8	52.6	23.6	0.7334	0.5705	-16.23	-9.85	16.71	28.99	0.4435	0.0608	0.0271	0.9816	1.6792	1.2049	77.86	79.41
9	55.0	21.7	0.7087	0.5372	-16.89	-10.41	15.78	33.29	0.4953	0.0883	0.0404	0.9748	1.6504	1.2099	73.27	75.07

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	983.9	708.3	700.0	684.5	691.4	182.0	53.99	60.22	0.0550	7.846	8.493
2	971.4	706.4	693.6	678.2	680.2	197.7	53.85	60.00	0.1083	7.172	7.582
3	957.2	711.4	687.0	682.2	666.5	201.8	53.64	60.76	0.1610	6.481	6.709
4	936.9	712.5	682.0	676.7	642.3	223.1	54.27	61.05	0.3151	4.354	4.327
5	917.3	710.0	649.0	660.2	648.3	261.4	52.69	60.03	0.5165	1.609	1.493
6	891.7	701.5	603.3	644.0	656.7	278.3	49.81	58.69	0.7145	-1.188	-1.348
7	870.0	690.5	549.3	630.6	674.6	281.3	45.51	56.95	0.8603	-3.451	-3.731
8	854.2	677.3	518.4	620.5	678.9	271.5	42.90	55.71	0.9080	-4.285	-4.640
9	829.6	641.2	476.1	595.9	679.4	236.7	39.32	53.03	0.9548	-5.195	-5.652
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1	PO/PO STAGE	EFF-AD STAGE	EFF-P STAGE
	11579.00	92.27	41.84				1.1816	0.9807	1.6680	86.67	87.59

## AIRFOIL AERODYNAMIC SUMMARY PRINT

95 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 95 POINT NO 7

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	U-1 M/SEC	U-2 M/SEC	V'-1 M/SEC	V'-2 M/SEC	VO'-1 M/SEC	VO'-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	150.5	284.4	148.5	182.5	24.3	218.1	260.3	268.0	278.9	189.2	-236.0	-49.9	160.55	234.87	0.0374	0.0910
2	159.5	278.8	157.2	179.7	26.9	213.2	270.3	275.5	289.7	190.2	-243.3	-62.3	170.49	233.84	0.0174	0.0758
3	161.7	273.5	159.1	176.2	29.0	209.2	280.0	282.9	297.2	191.0	-251.0	-73.7	172.43	231.35	-0.0001	0.0620
4	164.5	265.4	160.7	170.6	35.1	203.3	308.0	305.1	316.7	198.7	-272.9	-101.8	173.89	229.64	-0.0480	0.0214
5	165.5	260.1	159.6	159.0	43.8	205.9	342.9	334.8	339.1	204.7	-299.2	-128.9	172.61	219.33	-0.1056	-0.0340
6	163.5	252.6	156.4	144.5	47.6	207.2	375.5	364.4	363.3	213.5	-327.9	-157.2	169.61	202.47	-0.1545	-0.0907
7	159.7	245.2	152.8	124.6	46.7	211.1	398.2	386.7	383.3	215.3	-351.5	-175.5	165.90	174.84	-0.1790	-0.1273
8	156.7	239.6	149.8	112.8	45.8	211.4	405.4	394.1	389.6	214.7	-359.7	-182.6	162.61	158.01	-0.1807	-0.1346
9	153.9	232.9	147.2	98.9	44.9	210.8	412.3	401.5	395.8	214.8	-367.4	-190.7	159.63	138.49	-0.1744	-0.1376

SL	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	M-1	M-2	M'-1	M'-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	EFAC TOTAL	OMEGA-B TOTAL	LOSS-P TOTAL	P02/ P01	XEFF-A TOTAL	XEFF-P TOTAL
1	9.3	50.1	57.76	15.31	0.4511	0.8195	0.8359	0.5452	0.54	6.81	12.79	42.45	0.5355	0.0677	0.0197	1.7415	95.39	95.73
2	9.7	49.9	57.10	19.15	0.4793	0.8022	0.8706	0.5473	1.72	7.85	11.70	37.95	0.5142	0.0919	0.0267	1.7091	93.20	93.69
3	10.3	49.9	57.62	22.72	0.4863	0.7856	0.8935	0.5486	2.86	8.84	11.90	34.90	0.5494	0.0941	0.0273	1.6981	92.68	93.20
4	12.3	50.0	59.52	30.81	0.4951	0.7595	0.9530	0.5684	4.67	10.34	10.76	28.71	0.5479	0.0769	0.0219	1.7065	93.36	93.84
5	15.4	52.2	61.96	38.92	0.4980	0.7395	1.0207	0.5820	4.99	9.88	7.77	23.04	0.5624	0.0870	0.0239	1.7362	91.89	92.50
6	17.0	55.0	64.55	47.25	0.4918	0.7117	1.0930	0.6015	5.24	9.49	6.19	17.31	0.5735	0.1275	0.0322	1.7524	87.42	88.36
7	17.1	59.3	66.58	54.50	0.4800	0.6828	1.1518	0.5995	5.13	8.63	6.94	12.08	0.6014	0.1973	0.0442	1.7590	80.42	81.90
8	17.0	61.8	67.44	58.19	0.4704	0.6643	1.1698	0.5951	5.14	8.38	8.78	9.25	0.6122	0.2240	0.0461	1.7535	77.79	79.46
9	17.0	64.8	68.21	62.48	0.4616	0.6427	1.1875	0.5928	4.74	7.72	11.45	5.73	0.6198	0.2497	0.0455	1.7419	75.22	77.06

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	EPSI-1 DEGREE	EPSI-2 DEGREE	PCT SPAN	TE
1	493.8	933.2	487.3	598.8	79.7	715.7	854.1	879.5	915.0	620.8	-774.4	-163.8	32.88	48.10	2.142	5.214	0.0500	
2	523.4	914.7	525.8	589.6	88.4	699.3	886.8	903.8	950.6	624.1	-798.4	-204.5	34.92	47.89	0.997	4.346	0.1000	
3	530.6	897.5	522.0	578.2	95.2	686.4	918.7	928.1	975.0	626.6	-823.5	-241.7	35.32	47.38	-0.005	3.551	0.1499	
4	539.8	870.9	527.3	559.8	115.2	667.2	1010.5	1001.1	1039.1	651.8	-895.3	-333.9	35.61	47.03	-2.752	1.225	0.3000	
5	542.8	853.5	523.5	521.8	143.6	675.5	1125.2	1098.4	1112.5	671.7	-981.6	-422.9	35.35	44.92	-6.052	-1.947	0.5000	
6	536.4	828.9	513.2	474.2	156.2	679.9	1232.1	1195.7	1192.0	700.6	-1075.9	-515.8	34.74	41.47	-8.855	-5.197	0.7000	
7	524.1	804.4	501.2	408.8	153.3	692.7	1306.7	1268.6	1257.5	706.3	-1153.3	-575.9	33.98	35.81	-10.253	-7.292	0.8500	
8	514.0	786.2	491.6	370.0	150.2	693.7	1330.2	1293.0	1278.3	704.3	-1180.0	-599.2	33.30	32.36	-10.353	-7.712	0.9000	
9	504.9	764.1	482.9	324.7	147.2	691.7	1352.8	1317.3	1298.7	704.8	-1205.6	-625.6	32.69	28.36	-9.991	-7.882	0.9500	
	WC1/A1 LBM/SEC SQFT	WC1/A1 KG/SEC SQM								T02/T01	P02/P01	EFF-AD ROTOR %	EFF-P ROTOR %					
	34.34	167.57								1.1921	1.7327	88.47	89.32					

# AIRFOIL AERODYNAMIC SUMMARY PRINT

95 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 104 SPEED CODE 95 POINT NO 7

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	294.0	194.8	204.2	188.1	211.5	50.5	256.77	276.20	0.1383	0.1490
2	290.2	193.5	203.0	186.5	207.4	51.5	257.09	275.18	0.1281	0.1340
3	286.5	195.3	200.9	187.9	204.3	53.1	255.95	278.71	0.1177	0.1198
4	281.8	196.8	198.1	188.2	200.4	57.8	256.97	281.86	0.0847	0.0809
5	278.9	200.3	188.8	188.1	205.3	69.0	249.85	283.60	0.0384	0.0334
6	272.5	202.6	175.1	187.1	208.9	77.7	235.33	282.82	-0.0120	-0.0161
7	265.7	201.1	156.4	184.6	214.8	79.7	210.85	276.29	-0.0552	-0.0600
8	260.7	196.7	146.1	180.5	215.9	78.3	196.74	268.50	-0.0715	-0.0773
9	254.2	186.1	133.8	171.9	216.2	71.5	179.91	253.42	-0.0891	-0.0968

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	XEFF-A TOT-STG	XEFF-P TOT-STG
1	45.9	15.0	0.8509	0.5423	-4.30	-1.63	23.13	30.91	0.5269	0.1046	0.0362	0.9606	1.6721	1.1799	87.90	88.74
2	45.5	15.4	0.8395	0.5392	-3.09	-0.11	21.29	30.14	0.5236	0.0953	0.0337	0.9648	1.6488	1.1775	86.51	87.42
3	45.4	15.8	0.8279	0.5448	-2.54	0.73	19.94	29.64	0.5099	0.0681	0.0245	0.9753	1.6562	1.1762	87.99	88.81
4	45.3	17.0	0.8123	0.5493	-2.85	1.26	17.31	28.25	0.4978	0.0539	0.0205	0.9810	1.6732	1.1765	89.76	90.48
5	47.4	20.1	0.7995	0.5576	-4.38	0.67	15.55	27.26	0.4873	0.0550	0.0220	0.9811	1.7014	1.1848	88.69	89.50
6	50.0	22.6	0.7744	0.5614	-8.16	-2.34	14.44	27.46	0.4755	0.0424	0.0179	0.9860	1.7264	1.1964	85.95	86.98
7	53.9	23.4	0.7463	0.5523	-11.82	-5.56	15.62	30.57	0.4892	0.0447	0.0196	0.9861	1.7348	1.2152	79.18	80.72
8	55.9	23.4	0.7286	0.5381	-12.96	-6.58	16.52	32.45	0.5065	0.0507	0.0226	0.9848	1.7297	1.2219	76.34	78.08
9	58.2	22.6	0.7071	0.5064	-13.62	-7.14	16.69	35.65	0.5536	0.0791	0.0360	0.9775	1.7040	1.2278	72.16	74.15

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	964.5	639.0	669.9	617.1	693.9	165.7	52.59	56.57	0.0550	7.927	8.537
2	952.2	634.9	666.0	612.1	680.5	168.9	52.65	56.36	0.1083	7.342	7.677
3	940.1	640.8	659.3	616.6	670.2	174.3	52.42	57.08	0.1610	6.743	6.862
4	924.6	645.9	650.1	617.4	657.5	189.6	52.63	57.73	0.3151	4.851	4.638
5	915.1	657.3	619.5	617.1	673.6	226.3	51.17	58.08	0.5165	2.202	1.915
6	894.2	664.8	574.5	613.9	685.3	255.1	48.20	57.92	0.7145	-0.687	-0.922
7	871.8	659.7	513.2	605.6	704.8	261.6	43.18	56.59	0.8603	-3.165	-3.435
8	855.3	645.4	479.4	592.1	708.4	256.9	40.29	54.99	0.9080	-4.098	-4.431
9	834.1	610.7	438.9	563.9	709.3	234.5	36.85	51.90	0.9548	-5.106	-5.544
	NCORR INLET RPM	WCORR INLET	WCORR INLET	WCORR INLET			TO/TO STAGE	PO2/PO1	PO/PO STAGE	EFF-AD STAGE	EFF-P STAGE
	11576.60	89.07	40.39				1.1921	0.9799	1.6978	84.94	86.02

## AIRFOIL AERODYNAMIC SUMMARY PRINT

95 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 95 POINT NO 8

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2		
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN		
1	143.9	283.1	142.2	180.0	22.2	218.5	260.3	268.0	277.3	186.7	-238.1	-49.6	155.33	232.61	0.0365	0.0909		
2	153.0	278.0	150.8	177.0	25.6	214.4	270.3	275.5	287.5	187.2	-244.7	-61.0	165.26	231.38	0.0157	0.0758		
3	155.1	273.3	152.6	173.7	27.5	211.0	280.0	282.9	295.0	187.9	-252.5	-71.8	167.12	229.06	-0.0026	0.0620		
4	157.5	266.8	154.1	168.7	32.9	206.8	308.0	305.1	315.3	195.2	-275.1	-98.3	168.43	227.96	-0.0534	0.0210		
5	158.2	262.8	152.9	155.5	40.9	211.9	342.9	334.8	338.5	198.2	-302.0	-122.9	167.18	214.90	-0.1153	-0.0359		
6	155.9	256.6	149.3	138.1	45.1	216.3	375.5	364.4	362.6	202.5	-330.4	-148.1	163.69	193.63	-0.1671	-0.0954		
7	151.9	248.6	145.2	114.3	44.5	220.7	398.2	386.6	382.4	201.5	-353.8	-165.9	159.54	160.62	-0.1915	-0.1324		
8	148.6	243.4	142.0	101.1	43.6	221.4	405.4	394.0	388.7	200.1	-361.8	-172.7	155.98	141.94	-0.1919	-0.1385		
9	145.6	237.6	139.2	87.8	42.7	220.8	412.3	401.5	394.9	200.9	-369.5	-180.7	152.80	123.20	-0.1817	-0.1396		
SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	P02/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	P01	TOTAL	TOTAL
1	8.9	50.6	59.09	15.41	0.4307	0.8142	0.8298	0.5370	1.87	8.14	12.89	43.68	0.5449	0.0838	0.0244	1.7422	94.38	94.80
2	9.6	50.5	58.32	19.05	0.4589	0.7988	0.8622	0.5378	2.94	9.06	11.59	39.27	0.5542	0.1028	0.0299	1.7146	92.56	93.10
3	10.2	50.6	58.84	22.50	0.4654	0.7837	0.8854	0.5389	4.08	10.07	11.68	36.34	0.5604	0.1049	0.0304	1.7069	92.03	92.60
4	12.1	50.8	60.77	30.24	0.4731	0.7619	0.9469	0.5575	5.92	11.59	10.19	30.53	0.5630	0.0907	0.0260	1.7240	92.37	92.93
5	15.0	53.6	63.21	38.22	0.4754	0.7445	1.0168	0.5615	6.24	11.13	7.07	24.99	0.5907	0.1149	0.0319	1.7597	89.63	90.42
6	16.9	57.3	65.78	46.85	0.4680	0.7194	1.0884	0.5676	6.47	10.72	5.80	18.93	0.6159	0.1667	0.0425	1.7837	84.26	85.48
7	17.1	62.5	67.79	55.32	0.4553	0.6883	1.1466	0.5581	6.35	9.85	7.76	12.48	0.6487	0.2370	0.0520	1.7907	77.53	79.28
8	17.2	65.4	68.66	59.54	0.4452	0.6707	1.1644	0.5516	6.36	9.60	10.13	9.12	0.6608	0.2635	0.0521	1.7871	75.10	77.03
9	17.1	68.2	69.42	64.01	0.4360	0.6520	1.1823	0.5512	5.95	8.93	12.97	5.41	0.6655	0.2866	0.0496	1.7792	72.96	75.04
SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE	
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN	
1	472.3	928.7	466.6	590.5	72.9	716.8	854.0	879.4	909.9	612.4	-781.1	-162.6	31.81	47.64	2.091	5.209	0.0500	
2	502.0	912.3	494.9	580.7	83.9	703.6	886.7	903.8	943.1	614.2	-802.9	-200.2	33.85	47.39	0.899	4.343	0.1000	
3	508.8	896.7	500.7	569.8	90.2	692.4	918.6	928.1	968.0	616.6	-828.4	-235.7	34.23	46.91	-0.150	3.552	0.1499	
4	516.8	875.4	505.5	553.4	107.9	678.4	1010.4	1001.0	1034.4	640.6	-902.5	-322.7	34.50	46.69	-3.061	1.204	0.3000	
5	519.2	862.2	501.6	510.1	134.2	695.1	1125.1	1098.3	1110.7	650.2	-990.9	-403.2	34.24	44.01	-6.605	-2.060	0.5000	
6	511.6	842.0	489.7	453.1	147.9	709.8	1232.0	1195.6	1189.6	664.3	-1084.1	-485.8	33.53	39.66	-9.576	-5.466	0.7000	
7	498.2	815.5	476.4	375.2	145.9	724.1	1306.6	1268.5	1254.7	661.2	-1160.7	-544.5	32.68	32.90	-10.975	-7.586	0.8500	
8	487.5	798.5	466.0	331.9	143.2	726.3	1330.2	1292.9	1275.2	656.6	-1187.0	-566.6	31.95	29.07	-10.993	-7.934	0.9000	
9	477.9	779.5	456.9	288.0	140.1	724.4	1352.7	1317.2	1295.8	659.1	-1212.6	-592.8	31.29	25.23	-10.411	-7.999	0.9500	
	WCI/A1	WCI/A1							T02/T01	P02/P01	EFF-AD	EFF-P						
	LBM/SEC	KG/SEC									ROTOR	ROTOR						
	SQFT	SQM									%	%						
	33.16	161.80							1.2011	1.7545	86.61	87.62						

# AIRFOIL AERODYNAMIC SUMMARY PRINT

95 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 104 SPEED CODE 95 POINT NO 8

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	290.7	182.3	199.1	176.8	211.8	44.3	252.70	265.20	0.1393	0.1499
2	287.4	180.7	197.7	174.4	208.6	47.6	252.84	262.59	0.1302	0.1358
3	284.1	182.0	195.7	175.2	206.0	49.2	251.73	264.90	0.1210	0.1225
4	280.7	184.9	193.3	175.9	203.5	56.7	253.19	268.26	0.0923	0.0869
5	279.0	190.3	182.7	176.3	210.9	71.6	243.64	270.21	0.0510	0.0434
6	274.1	195.3	166.7	179.4	217.6	77.0	225.52	275.62	0.0008	-0.0045
7	266.9	195.1	144.9	178.6	224.1	78.5	196.52	271.88	-0.0463	-0.0507
8	262.3	192.4	133.6	175.9	225.7	77.8	181.02	266.24	-0.0650	-0.0700
9	256.6	184.4	120.9	168.7	226.4	74.5	163.71	253.08	-0.0856	-0.0925

SL	B-1	B-2	M-1	M-2	INCS	INCM	DEV	TURN	D-FAC	OMEGA-B	LCSS-P	PO2/	PO/PO	TO/TO	%EFF-A	%EFF-P
	DEGREE	DEGREE			DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	STAGE	STAGE	TOT-STG	TOT-STG
1	46.7	14.0	0.8392	0.5052	-3.53	-0.86	22.18	32.63	0.5728	0.1009	0.0351	0.9627	1.6775	1.1821	87.45	88.33
2	46.5	15.2	0.8293	0.5013	-2.15	0.83	21.13	31.24	0.5702	0.0986	0.0348	0.9642	1.6536	1.1799	85.87	86.83
3	46.4	15.7	0.8188	0.5050	-1.53	1.74	19.85	30.74	0.5599	0.0788	0.0284	0.9719	1.6586	1.1792	86.75	87.66
4	46.5	17.9	0.8066	0.5129	-1.69	2.42	18.13	28.60	0.5432	0.0702	0.0265	0.9755	1.6791	1.1814	87.95	88.79
5	49.1	22.1	0.7962	0.5261	-2.66	2.38	17.53	27.01	0.5254	0.0690	0.0273	0.9764	1.7132	1.1930	86.11	87.12
6	52.5	23.2	0.7744	0.5370	-5.66	0.16	15.10	29.30	0.5187	0.0539	0.0226	0.9822	1.7488	1.2083	83.09	84.35
7	57.1	23.7	0.7448	0.5319	-8.65	-2.39	15.97	33.38	0.5311	0.0467	0.0205	0.9854	1.7638	1.2287	76.91	78.66
8	59.4	23.8	0.7284	0.5223	-9.49	-3.11	16.92	35.51	0.5445	0.0478	0.0212	0.9855	1.7647	1.2366	74.43	76.37
9	61.9	23.8	0.7092	0.4979	-9.97	-3.50	17.94	38.05	0.5786	0.0630	0.0284	0.9819	1.7487	1.2442	70.84	73.01

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	PCT TE	EPSI-1	EPSI-2
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	SPAN	DEGREE	DEGREE
1	953.7	598.0	653.2	580.1	694.9	145.4	51.75	54.32	0.0550	7.983	8.587
2	943.0	593.0	648.6	572.1	684.5	156.1	51.78	53.78	0.1083	7.461	7.778
3	932.2	597.1	642.0	574.8	675.8	161.6	51.56	54.25	0.1610	6.935	7.020
4	921.0	606.5	634.2	577.2	667.8	186.1	51.85	54.94	0.3151	5.286	4.979
5	915.3	624.3	599.3	578.4	691.8	234.9	49.90	55.34	0.5165	2.922	2.489
6	899.4	640.7	547.1	588.7	713.8	252.6	46.19	56.45	0.7145	0.048	-0.260
7	875.7	640.2	475.4	586.1	735.4	257.6	40.25	55.68	0.8603	-2.653	-2.904
8	860.6	631.2	438.3	577.2	740.7	255.4	37.07	54.53	0.9080	-3.724	-4.012
9	842.0	605.0	396.6	553.4	742.7	244.5	33.53	51.83	0.9548	-4.906	-5.301
	NCORR	WCORR	WCORR	WCORR			TO/TO	PO2/PO1	PO/PO	EFF-AD	EFF-P
	INLET	INLET	INLET	INLET			STAGE	STAGE	STAGE	STAGE	STAGE
	RPM	LBM/SEC	KG/SEC							X	X
	11575.80	86.00	39.00				1.2011	0.9774	1.7148	82.81	84.06



## AIRFOIL AERODYNAMIC SUMMARY PRINT

95 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 95 POINT NO 11

[illegible]

# AIRFOIL AERODYNAMIC SUMMARY PRINT

95 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 104 SPEED CODE 95 POINT NO 11

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	296.7	207.7	209.6	200.5	210.0	54.3	261.17	287.12	0.1375	0.1485
2	293.2	206.7	208.3	198.8	206.2	56.7	261.38	286.11	0.1264	0.1330
3	288.8	207.8	205.7	199.4	202.8	58.7	259.46	288.68	0.1151	0.1183
4	283.2	208.8	204.0	198.7	196.5	64.1	262.12	291.23	0.0799	0.0778
5	278.0	209.8	193.3	195.9	199.8	75.1	253.13	289.26	0.0325	0.0290
6	271.7	209.6	180.6	193.1	202.9	81.6	240.60	285.91	-0.0175	-0.0211
7	264.7	206.8	163.2	189.8	208.4	82.2	217.94	278.27	-0.0588	-0.0636
8	259.8	202.5	153.5	185.9	209.6	80.2	204.68	270.97	-0.0741	-0.0801
9	253.3	191.9	142.0	178.0	209.8	71.8	189.13	257.17	-0.0905	-0.0984

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	%EFF-A TOT-STG	%EFF-P TOT-STG
1	45.0	15.1	0.8609	0.5813	-5.26	-2.59	23.26	29.83	0.4811	0.1095	0.0379	0.9580	1.6639	1.1780	87.96	88.78
2	44.6	15.9	0.8501	0.5789	-4.00	-1.02	21.79	28.74	0.4751	0.0984	0.0347	0.9630	1.6408	1.1753	86.71	87.60
3	44.5	16.4	0.8366	0.5828	-3.43	-0.15	20.55	28.15	0.4611	0.0683	0.0245	0.9749	1.6468	1.1734	88.34	89.13
4	43.9	17.9	0.8189	0.5861	-4.26	-0.15	18.12	26.03	0.4443	0.0474	0.0179	0.9831	1.6630	1.1715	91.21	91.82
5	45.9	21.0	0.7994	0.5875	-5.83	-0.78	16.39	24.97	0.4346	0.0396	0.0158	0.9864	1.6834	1.1776	90.32	91.00
6	48.3	22.9	0.7753	0.5845	-9.87	-4.05	14.79	25.42	0.4325	0.0401	0.0169	0.9868	1.6996	1.1871	87.41	88.31
7	51.9	23.4	0.7469	0.5716	-13.82	-7.56	15.68	28.51	0.4498	0.0462	0.0203	0.9856	1.7033	1.2046	80.29	81.70
8	53.8	23.3	0.7295	0.5574	-15.08	-8.70	16.41	30.44	0.4672	0.0523	0.0233	0.9843	1.6979	1.2111	77.33	78.94
9	55.9	22.0	0.7081	0.5255	-15.95	-9.47	16.08	33.93	0.5161	0.0844	0.0386	0.9759	1.6713	1.2164	73.00	74.86

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	973.6	681.6	687.8	657.9	689.1	178.2	53.49	58.80	0.0550	7.878	8.511
2	961.8	678.1	683.5	652.1	676.7	186.0	53.53	58.60	0.1083	7.244	7.623
3	947.7	681.9	674.8	654.1	665.4	192.6	53.14	59.12	0.1610	6.595	6.776
4	929.3	685.0	669.2	651.9	644.7	210.3	53.69	59.65	0.3151	4.577	4.460
5	912.1	688.3	634.1	642.6	655.6	246.5	51.84	59.24	0.5165	1.864	1.660
6	891.4	687.7	592.7	633.5	665.8	267.7	49.28	58.56	0.7145	-1.005	-1.207
7	868.5	678.5	535.5	622.6	683.8	269.6	44.64	56.99	0.8603	-3.366	-3.646
8	852.4	664.3	503.5	609.9	687.7	263.2	41.92	55.50	0.9080	-4.244	-4.592
9	831.2	629.7	465.9	584.0	688.4	235.5	38.73	52.67	0.9548	-5.186	-5.636
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1	PO/PO STAGE	EFF-AD STAGE %	EFF-P STAGE %
	11581.40	91.03	41.28				1.1850	0.9809	1.6778	86.10	87.07

## AIRFOIL AERODYNAMIC SUMMARY PRINT

95 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 106 SPEED CODE 95 POINT NO 1

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	160.6	288.1	159.3	191.6	20.3	215.1	260.5	268.3	288.3	198.8	-240.2	-53.2	168.67	245.39	0.0372	0.0899
2	170.1	282.8	168.5	188.0	23.7	211.3	270.5	275.7	298.8	198.7	-246.8	-64.4	178.93	243.29	0.0172	0.0738
3	173.3	277.2	171.3	184.5	26.4	206.8	280.2	283.1	306.3	199.7	-253.9	-76.3	181.93	240.95	-0.0001	0.0590
4	177.2	266.8	174.1	180.0	32.8	196.9	308.3	305.4	325.9	210.2	-275.4	-108.5	184.63	240.96	-0.0467	0.0170
5	178.1	257.9	173.1	168.4	41.8	195.3	343.3	335.1	347.6	218.8	-301.4	-139.8	183.44	230.30	-0.1017	-0.0379
6	176.0	247.7	169.7	155.1	46.6	193.1	375.9	364.8	370.4	231.3	-329.2	-171.6	180.33	215.30	-0.1472	-0.0910
7	172.2	240.8	166.0	141.1	45.7	195.1	398.6	387.0	390.0	238.2	-352.9	-191.9	176.56	196.11	-0.1728	-0.1265
8	169.0	234.6	163.0	129.1	44.8	195.9	405.8	394.4	396.1	236.9	-361.0	-198.6	173.20	178.76	-0.1776	-0.1349
9	166.1	223.0	160.2	108.2	43.9	195.0	412.7	401.8	402.1	233.4	-368.8	-206.8	170.14	149.06	-0.1747	-0.1384

SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PO2/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	7.2	48.3	56.38	15.53	0.4828	0.8311	0.8665	0.5736	-0.84	5.44	13.00	40.86	0.5181	0.0425	0.0124	1.7612	96.97	97.20
2	8.0	48.4	55.65	18.94	0.5128	0.8147	0.9008	0.5725	0.28	6.40	11.49	36.71	0.5310	0.0753	0.0220	1.7250	94.20	94.63
3	8.7	48.3	55.98	22.49	0.5230	0.7972	0.9241	0.5743	1.22	7.21	11.67	33.49	0.5347	0.0795	0.0231	1.7080	93.55	94.01
4	10.7	47.6	57.71	31.08	0.5354	0.7652	0.9845	0.6029	2.86	8.53	11.03	26.63	0.5209	0.0581	0.0165	1.6989	94.68	95.06
5	13.6	49.1	60.16	39.60	0.5382	0.7356	1.0504	0.6242	3.19	8.08	8.44	20.56	0.5237	0.0652	0.0177	1.7052	93.46	93.93
6	15.4	51.1	62.75	47.73	0.5316	0.7017	1.1187	0.6552	3.44	7.69	6.68	15.02	0.5201	0.0932	0.0233	1.7036	89.99	90.71
7	15.4	54.0	64.85	53.53	0.5193	0.6755	1.1763	0.6683	3.41	6.91	5.98	11.32	0.5345	0.1513	0.0347	1.7087	83.59	84.77
8	15.4	56.5	65.76	56.85	0.5093	0.6548	1.1937	0.6612	3.46	6.70	7.44	8.90	0.5482	0.1829	0.0390	1.7001	80.20	81.61
9	15.4	60.9	66.56	62.29	0.5002	0.6189	1.2105	0.6478	3.09	6.07	11.26	4.27	0.5651	0.2235	0.0410	1.6682	75.67	77.35

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT	TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN	
1	527.0	945.2	522.8	528.6	66.6	705.8	854.8	880.3	945.8	652.4	-788.2	-174.5	34.55	50.26	2.131	5.154	0.0500	
2	558.1	927.9	552.7	616.8	77.7	693.2	887.6	904.6	980.5	652.0	-809.8	-211.4	36.65	49.83	0.983	4.227	0.1000	
3	568.6	909.4	562.0	605.3	86.5	678.6	919.5	928.9	1004.8	655.1	-833.0	-250.3	37.26	49.35	-0.007	3.381	0.1499	
4	581.4	875.2	571.4	590.6	107.7	645.9	1011.4	1002.0	1069.2	689.6	-903.7	-356.1	37.81	49.35	-2.675	0.974	0.3000	
5	584.3	846.0	567.9	552.4	137.3	640.8	1126.2	1099.4	1140.4	717.9	-989.0	-458.6	37.57	47.17	-5.828	-2.170	0.5000	
6	577.6	812.8	556.9	508.9	153.0	633.7	1233.2	1196.8	1215.3	758.9	-1080.2	-563.0	36.93	44.10	-8.434	-5.211	0.7000	
7	564.9	790.0	544.6	463.1	150.0	640.1	1307.8	1269.8	1279.6	781.6	-1157.3	-629.7	36.16	40.17	-9.902	-7.245	0.8500	
8	554.5	769.7	534.7	423.6	146.9	642.6	1331.4	1294.1	1299.7	777.2	-1184.6	-651.5	35.47	36.61	-10.174	-7.728	0.9000	
9	545.1	731.8	525.7	355.1	144.1	639.9	1354.0	1318.4	1319.2	765.9	-1209.9	-678.6	34.85	30.53	-10.009	-7.931	0.9500	
	WCI/A1		WCI/A1							T02/T01	P02/P01	EFF-AD						
	LBM/SEC		KG/SEC							ROTOR		ROTOR						
	SQFT		SQM							%		%						
	36.51		178.15							1.1827	1.7060	90.21		90.91				

# AIRFOIL AERODYNAMIC SUMMARY PRINT

95 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 106 SPEED CODE 95 POINT NO 1

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	302.7	241.0	219.4	227.3	208.6	79.9	270.99	306.32	0.1363	0.1483
2	299.5	240.8	217.7	227.0	205.6	80.3	270.58	307.99	0.1237	0.1323
3	295.6	242.1	215.8	228.3	202.0	80.7	269.69	311.99	0.1107	0.1169
4	288.6	240.4	213.4	223.9	194.3	87.5	271.65	310.41	0.0712	0.0745
5	281.3	237.4	202.7	217.7	195.1	94.7	263.20	304.41	0.0205	0.0232
6	271.2	230.8	188.4	206.6	195.1	103.0	248.97	289.31	-0.0285	-0.0273
7	264.1	226.7	174.0	199.9	198.7	107.0	230.85	277.82	-0.0643	-0.0673
8	258.5	222.7	163.7	195.8	200.1	106.1	216.71	270.57	-0.0770	-0.0820
9	247.6	210.5	146.0	183.9	200.0	102.5	192.33	251.72	-0.0913	-0.0988

SL	B-1	B-2	M-1	M-2	INCS	INCM	DEV	TURN	D-FAC	OMEGA-B	LOSS-P	PO2/	PO/PO	TO/TO	XEFF-A	XEFF-P
	DEGREE	DEGREE			DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	STAGE	STAGE	TOT-STG	TOT-STG
1	43.4	19.3	0.8796	0.6813	-6.76	-4.10	27.47	24.11	0.3487	0.1249	0.0423	0.9506	1.6714	1.1808	87.41	88.29
2	43.3	19.4	0.8697	0.6816	-5.36	-2.38	25.33	23.83	0.3416	0.1060	0.0366	0.9588	1.6519	1.1786	86.31	87.24
3	43.0	19.4	0.8577	0.6863	-4.93	-1.65	23.61	23.58	0.3276	0.0737	0.0260	0.9719	1.6591	1.1764	88.21	89.02
4	42.3	21.3	0.8361	0.6820	-5.90	-1.79	21.58	20.94	0.3098	0.0524	0.0194	0.9808	1.6664	1.1728	90.91	91.54
5	43.9	23.5	0.8109	0.6717	-7.88	-2.84	18.91	20.40	0.3068	0.0532	0.0209	0.9813	1.6733	1.1763	89.84	90.55
6	46.0	26.5	0.7759	0.6497	-12.19	-6.37	18.38	19.51	0.3051	0.0707	0.0289	0.9768	1.6640	1.1825	85.79	86.77
7	48.8	28.2	0.7479	0.6330	-16.96	-10.69	20.42	20.63	0.3114	0.0862	0.0364	0.9732	1.6635	1.1970	79.42	80.83
8	50.7	28.5	0.7284	0.6192	-18.15	-11.77	21.53	22.24	0.3217	0.0899	0.0384	0.9731	1.6591	1.2034	76.46	78.07
9	53.9	29.1	0.6933	0.5817	-17.99	-11.52	23.25	24.72	0.3502	0.1006	0.0433	0.9723	1.6237	1.2079	71.42	73.29

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	PCT TE	EPSI-1	EPSI-2
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	SPAN	DEGREE	DEGREE
1	993.2	790.6	719.8	745.9	684.3	262.2	55.50	62.74	0.0550	7.807	8.497
2	982.6	790.1	714.4	744.9	674.6	263.3	55.42	63.08	0.1083	7.088	7.582
3	969.9	794.4	708.1	748.9	662.8	264.9	55.23	63.90	0.1610	6.342	6.697
4	946.9	788.7	700.2	734.5	637.5	287.2	55.64	63.57	0.3151	4.078	4.268
5	923.0	778.9	665.0	714.3	640.1	310.6	53.91	62.35	0.5165	1.176	1.331
6	890.0	757.4	618.3	677.8	640.1	337.8	50.99	59.25	0.7145	-1.636	-1.566
7	866.5	743.9	570.9	655.8	651.8	351.0	47.28	56.90	0.8603	-3.686	-3.855
8	848.2	730.7	537.2	642.4	656.5	348.1	44.38	55.42	0.9080	-4.413	-4.698
9	812.4	690.6	479.0	603.2	656.1	336.2	39.39	51.55	0.9548	-5.233	-5.658
	NCORR	WCORR	WCORR				TO/TO	PO2/PO1	PO/PO	EFF-AD	EFF-P
	INLET	INLET	INLET				STAGE	STAGE	STAGE	STAGE	STAGE
	RPM	LBM/SEC	KG/SEC						%	%	%
	11587.00	94.69	42.94				1.1827	0.9746	1.6626	85.54	86.53

## AIRFOIL AERODYNAMIC SUMMARY PRINT

90 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 90 POINT NO 1

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2		
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN		
1	151.0	274.6	148.9	184.2	24.6	203.7	246.7	254.0	267.4	190.9	-222.0	-50.4	160.83	231.20	0.0376	0.0900		
2	160.0	269.4	157.6	181.0	27.7	199.6	256.1	261.0	277.5	191.1	-228.4	-61.5	170.69	229.45	0.0181	0.0739		
3	162.2	263.6	159.3	177.3	30.3	195.1	265.3	268.1	283.9	191.7	-235.0	-73.0	172.56	226.63	0.0012	0.0591		
4	164.8	253.4	160.8	173.0	36.0	185.2	291.9	289.1	302.2	201.8	-255.8	-104.0	173.87	226.14	-0.0447	0.0170		
5	165.7	242.7	160.0	163.0	43.0	179.8	325.0	317.2	324.2	213.2	-282.0	-137.4	173.01	217.32	-0.0994	-0.0376		
6	164.1	233.1	157.3	152.8	46.7	175.9	353.9	345.3	346.9	228.2	-309.2	-169.4	170.47	206.42	-0.1462	-0.0908		
7	160.8	226.5	153.9	138.6	46.3	179.1	377.4	366.4	365.1	233.0	-331.1	-187.3	167.04	187.06	-0.1737	-0.1271		
8	157.9	220.3	151.2	126.2	45.6	180.5	384.2	373.4	370.8	230.5	-338.6	-192.9	164.00	169.51	-0.1791	-0.1358		
9	155.5	208.0	148.8	104.0	44.9	180.1	390.7	380.5	376.5	225.7	-345.8	-200.3	161.36	138.80	-0.1763	-0.1391		
SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PO2/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	9.4	47.9	55.09	15.31	0.4525	0.7960	0.8015	0.5535	-1.13	5.14	12.78	40.78	0.4921	0.0515	0.0150	1.6401	96.31	96.56
2	10.0	47.8	55.37	18.78	0.4808	0.7802	0.8339	0.5535	-0.01	6.12	11.32	36.59	0.5045	0.0811	0.0237	1.6092	93.70	94.11
3	10.8	47.8	55.85	22.40	0.4878	0.7623	0.8539	0.5545	1.09	7.08	11.57	33.46	0.5083	0.0817	0.0237	1.5946	93.30	93.73
4	12.6	46.9	57.86	30.99	0.4960	0.7311	0.9094	0.5823	3.01	8.68	10.94	26.87	0.4944	0.0546	0.0155	1.5875	94.92	95.24
5	15.1	47.7	60.44	40.03	0.4988	0.6972	0.9760	0.6124	3.48	8.36	8.87	20.42	0.4884	0.0562	0.0152	1.5816	94.12	94.49
6	16.5	48.9	63.06	47.78	0.4937	0.6657	1.0439	0.6517	3.75	8.00	6.73	15.28	0.4784	0.0772	0.0193	1.5769	91.19	91.73
7	16.8	52.1	65.11	53.35	0.4832	0.6413	1.0974	0.6597	3.67	7.17	5.80	11.76	0.4998	0.1418	0.0327	1.5777	83.70	84.70
8	16.8	54.9	65.99	56.70	0.4743	0.6206	1.1138	0.6494	3.69	6.93	7.28	9.29	0.5177	0.1788	0.0383	1.5676	79.53	80.78
9	16.8	59.9	66.76	62.49	0.4667	0.5826	1.1299	0.6322	3.29	6.27	11.45	4.27	0.5397	0.2265	0.0413	1.5344	73.93	75.44
SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE	
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN	
1	495.3	900.9	488.6	604.2	80.8	668.2	809.3	833.4	877.2	626.4	-728.5	-165.2	32.94	47.35	2.157	5.156	0.0500	
2	524.9	884.0	516.9	593.9	90.9	654.9	840.4	856.5	910.4	627.2	-749.4	-201.6	34.96	46.99	1.036	4.233	0.1000	
3	532.2	865.0	522.8	581.8	99.5	640.1	870.6	879.5	931.6	629.1	-771.1	-239.4	35.34	46.42	0.068	3.389	0.1499	
4	540.7	831.5	527.6	567.7	118.2	607.6	957.6	948.7	991.5	662.3	-839.4	-341.1	35.61	46.31	-2.559	0.975	0.3000	
5	543.6	796.4	525.0	534.9	141.2	590.0	1066.3	1040.9	1063.7	699.6	-925.1	-450.9	35.43	44.51	-5.693	-2.156	0.5000	
6	538.3	764.7	516.1	501.5	153.1	577.3	1167.6	1133.1	1138.3	748.6	-1014.5	-555.8	34.91	42.28	-8.376	-5.203	0.7000	
7	527.4	743.2	505.0	454.9	152.1	587.7	1238.2	1202.2	1197.9	764.5	-1086.2	-614.5	34.21	38.31	-9.954	-7.285	0.8500	
8	518.2	722.7	496.1	414.0	149.6	592.3	1260.6	1225.3	1216.7	756.3	-1111.0	-632.9	33.59	34.72	-10.261	-7.779	0.9000	
9	510.1	682.4	488.4	341.1	147.4	591.0	1281.9	1248.3	1235.2	740.5	-1134.5	-657.3	33.05	28.43	-10.100	-7.969	0.9500	
	WC1/A1		WC1/A1						TO2/TO1	PO2/PO1	EFF-AD	EFF-P						
	LBM/SEC		KG/SEC								ROTOR	ROTOR						
	SQFT		SQM								%	%						
	34.45		168.12						1.1553	1.5838	90.42	91.02						

# AIRFOIL AERODYNAMIC SUMMARY PRINT

90 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 104 SPEED CODE 90 POINT NO 1

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	289.0	242.2	211.0	230.4	197.5	74.7	255.98	295.60	0.1354	0.1479
2	285.8	241.8	209.7	228.6	194.2	78.9	255.77	295.12	0.1220	0.1316
3	281.8	242.7	207.5	228.8	190.6	81.0	254.42	297.65	0.1085	0.1159
4	274.8	240.3	205.2	223.9	182.8	87.1	255.80	295.25	0.0672	0.0726
5	265.7	234.4	195.6	213.7	179.7	96.2	248.43	284.10	0.0162	0.0212
6	255.9	227.2	184.1	203.3	177.8	101.4	237.41	270.95	-0.0300	-0.0278
7	249.0	223.2	169.6	198.1	182.4	102.8	219.17	262.35	-0.0639	-0.0665
8	243.5	219.5	159.0	194.4	184.4	101.9	204.91	256.00	-0.0763	-0.0810
9	231.9	207.6	140.2	183.2	184.7	97.6	179.58	239.11	-0.0907	-0.0980

SL	B-1	B-2	M-1	M-2	INCS	INCM	DEV	TURN	D-FAC	OMEGA-B	LOSS-P	PO2/P01	PO/PO	TO/TO	%EFF-A	%EFF-P
	DEGREE	DEGREE			DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	P01	STAGE	STAGE	TOT-STG	TOT-STG
1	43.0	17.9	0.8436	0.6928	-7.22	-4.55	26.05	25.07	0.3064	0.1249	0.0426	0.9535	1.5608	1.1574	86.17	87.00
2	42.7	19.0	0.8340	0.6921	-5.91	-2.93	24.90	23.71	0.2938	0.1057	0.0366	0.9614	1.5447	1.1550	85.37	86.24
3	42.5	19.4	0.8215	0.6959	-5.49	-2.21	23.63	23.01	0.2766	0.0714	0.0252	0.9745	1.5528	1.1525	87.84	88.57
4	41.6	21.2	0.8002	0.6895	-6.53	-2.42	21.47	20.41	0.2591	0.0524	0.0194	0.9820	1.5587	1.1487	90.95	91.50
5	42.6	24.2	0.7704	0.6709	-9.23	-4.18	19.64	18.33	0.2499	0.0578	0.0225	0.9813	1.5517	1.1489	89.86	90.47
6	44.0	26.5	0.7378	0.6474	-14.17	-8.35	18.39	17.51	0.2498	0.0788	0.0322	0.9761	1.5391	1.1524	86.03	86.85
7	47.1	27.4	0.7113	0.6314	-18.65	-12.39	19.68	19.67	0.2605	0.0911	0.0387	0.9738	1.5371	1.1654	79.03	80.26
8	49.2	27.7	0.6920	0.6183	-19.63	-13.25	20.73	21.56	0.2710	0.0947	0.0407	0.9738	1.5323	1.1716	75.54	76.96
9	52.8	28.0	0.6549	0.5815	-19.05	-12.58	22.16	24.75	0.2965	0.0985	0.0428	0.9752	1.4986	1.1759	69.65	71.32

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	PCT TE	EPSI-1	EPSI-2
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	SPAN	DEGREE	DEGREE
1	948.2	794.8	692.4	756.1	647.9	245.0	52.43	60.54	0.0550	7.756	8.477
2	937.8	793.3	688.0	749.9	637.3	258.8	52.38	60.44	0.1083	6.993	7.543
3	924.4	796.4	680.9	750.7	625.2	265.8	52.11	60.96	0.1610	6.215	6.642
4	901.6	788.3	673.3	734.7	599.6	285.7	52.39	60.47	0.3151	3.849	4.161
5	871.6	769.0	641.9	701.2	589.6	315.6	50.88	58.19	0.5165	0.930	1.214
6	839.7	745.3	603.9	667.0	583.4	332.6	48.62	55.49	0.7145	-1.719	-1.593
7	817.1	732.3	556.3	650.0	598.5	337.2	44.89	53.73	0.8603	-3.659	-3.812
8	798.9	720.1	521.7	637.8	605.1	334.3	41.97	52.43	0.9080	-4.370	-4.643
9	760.8	681.2	459.9	601.2	606.1	320.3	36.78	48.97	0.9548	-5.196	-5.613
	NCORR	WCORR	WCORR	WCORR			TO/TO	PO2/PO1	PO/PO	EFF-AD	EFF-P
	INLET	INLET	INLET	INLET			STAGE	STAGE	STAGE	STAGE	STAGE
	RPM	LBM/SEC	KG/SEC						%	%	
	10970.50	89.36	40.52				1.1553	0.9756	1.5451	85.25	86.12

## AIRFOIL AERODYNAMIC SUMMARY PRINT

90 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 90 POINT NO 2

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	U-1 M/SEC	U-2 M/SEC	V'-1 M/SEC	V'-2 M/SEC	VO'-1 M/SEC	VO'-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	145.8	272.2	143.9	179.2	23.8	204.8	246.7	254.0	265.3	185.9	-222.8	-49.2	156.68	227.04	0.0374	0.0903
2	154.7	267.3	152.3	176.3	27.2	200.9	256.1	261.0	275.0	186.2	-228.9	-60.1	166.39	225.57	0.0176	0.0746
3	156.8	262.0	154.1	173.3	29.1	196.6	265.3	268.0	282.0	187.4	-236.2	-71.5	168.22	223.53	0.0003	0.0602
4	159.3	252.1	155.5	168.0	34.7	188.0	291.8	289.1	300.5	196.0	-257.2	-101.1	169.52	221.50	-0.0466	0.0185
5	160.1	242.2	154.5	155.7	42.2	185.5	325.0	317.2	322.2	203.9	-282.8	-131.7	168.40	209.37	-0.1010	-0.0358
6	158.7	234.5	151.9	146.3	45.6	183.3	355.8	345.3	345.4	218.3	-310.2	-162.1	166.00	199.66	-0.1464	-0.0892
7	155.5	228.2	148.8	130.5	45.2	187.2	377.4	366.4	364.0	221.7	-332.2	-179.2	162.73	178.20	-0.1718	-0.1251
8	152.7	223.0	146.1	119.3	44.3	188.3	384.2	373.4	369.9	220.2	-339.9	-185.1	159.69	162.40	-0.1755	-0.1333
9	150.2	214.8	143.8	103.6	43.6	188.2	390.7	380.4	375.7	218.4	-347.1	-192.3	157.06	140.53	-0.1720	-0.1371

SL	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	M-1	M-2	M'-1	M'-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	XEFF-A TOTAL	XEFF-P TOTAL
1	9.4	48.8	57.09	15.35	0.4366	0.7876	0.7941	0.5378	-0.13	6.14	12.83	41.74	0.5094	0.0590	0.0172	1.6447	95.87	96.15
2	10.1	48.8	56.33	18.84	0.4644	0.7727	0.8252	0.5383	0.95	7.08	11.39	37.48	0.5201	0.0831	0.0242	1.6169	93.70	94.11
3	10.7	48.6	56.87	22.44	0.4708	0.7563	0.8467	0.5410	2.11	8.10	11.62	34.43	0.5234	0.0834	0.0242	1.6057	93.33	93.76
4	12.6	48.2	58.86	31.03	0.4787	0.7255	0.9030	0.5641	4.00	9.68	10.99	27.82	0.5158	0.0639	0.0181	1.6011	94.23	94.60
5	15.3	49.9	61.38	40.13	0.4812	0.6931	0.9684	0.5836	4.41	9.30	8.98	21.25	0.5214	0.0757	0.0204	1.6014	92.43	92.91
6	16.7	51.2	63.93	47.77	0.4766	0.6670	1.0377	0.6210	4.61	8.86	6.72	16.16	0.5135	0.0965	0.0242	1.6086	89.60	90.27
7	16.9	55.0	65.91	53.78	0.4667	0.6431	1.0925	0.6246	4.47	7.97	6.23	12.13	0.5390	0.1639	0.0374	1.6135	82.26	83.41
8	16.9	57.5	66.78	57.07	0.4579	0.6253	1.1095	0.6176	4.48	7.72	7.66	9.71	0.5539	0.1956	0.0415	1.6076	78.90	80.25
9	16.9	61.1	67.53	61.60	0.4503	0.5996	1.1261	0.6096	4.06	7.04	10.56	5.94	0.5678	0.2296	0.0431	1.5901	75.18	76.74

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	EPSI-1 DEGREE	EPSI-2 DEGREE	PCT TE SPAN
1	478.5	893.1	472.1	588.1	78.1	672.1	809.3	833.4	870.3	609.8	-731.1	-161.3	32.09	46.50	2.142	5.177	0.0500
2	507.7	877.1	499.8	578.4	89.1	659.3	840.3	856.4	902.3	611.1	-751.2	-197.1	34.08	46.20	1.006	4.274	0.1000
3	514.5	859.8	505.5	568.5	95.6	645.0	870.5	879.5	925.2	614.9	-774.9	-234.5	34.45	45.78	0.017	3.447	0.1499
4	522.7	827.2	510.2	551.1	113.8	617.0	957.5	948.6	986.0	643.2	-843.7	-331.7	34.72	45.36	-2.669	1.061	0.3000
5	525.3	794.6	506.8	510.8	138.4	608.7	1066.2	1040.8	1057.2	669.0	-927.8	-432.1	34.49	42.88	-5.786	-2.052	0.5000
6	520.5	769.3	498.5	479.9	149.7	601.3	1167.5	1133.0	1133.3	716.2	-1017.8	-531.7	34.00	40.89	-8.391	-5.113	0.7000
7	510.1	748.8	488.1	428.3	148.2	614.3	1238.1	1202.1	1194.3	727.3	-1089.9	-587.8	33.33	36.50	-9.846	-7.167	0.8500
8	500.9	731.5	479.3	391.5	145.4	617.9	1260.5	1225.2	1213.7	722.5	-1115.1	-607.2	32.71	33.26	-10.055	-7.638	0.9000
9	492.9	704.7	471.8	339.8	142.9	617.4	1281.8	1248.2	1232.8	716.5	-1138.9	-630.8	32.17	28.78	-9.853	-7.858	0.9500

	WC1/A1 LBM/SEC SQFT	WC1/A1 KG/SEC SQM	T02/T01	PO2/PO1	EFF-AD ROTOR %	EFF-P ROTOR %
	33.55	163.70	1.1623	1.6072	89.43	90.11

90 PERCENT DESIGN SPEED (STATOR PERFORMANCE) AIRFOIL AERODYNAMIC SUMMARY PRINT  
 RUN NO 104 SPEED CODE 90 POINT NO 2

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	284.1	212.1	203.1	204.6	198.6	56.2	250.22	280.00	0.1367	0.1482
2	281.1	211.6	201.9	202.7	195.6	60.9	250.24	278.87	0.1248	0.1323
3	277.4	212.9	200.2	203.7	192.0	62.1	249.48	281.97	0.1127	0.1172
4	270.8	212.7	197.2	202.3	185.5	65.7	249.72	283.35	0.0749	0.0756
5	262.9	209.9	186.5	195.7	185.3	75.9	240.21	276.00	0.0249	0.0249
6	255.7	207.0	176.5	190.4	185.1	81.2	230.86	269.19	-0.0238	-0.0249
7	249.7	204.4	161.2	186.7	190.7	83.3	211.28	261.70	-0.0616	-0.0654
8	244.8	200.9	151.4	183.3	192.4	82.3	197.97	255.53	-0.0755	-0.0810
9	237.2	190.7	137.9	174.9	193.0	75.9	179.85	241.78	-0.0910	-0.0985

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	XEFF-A TOT-STG	XEFF-P TOT-STG
1	44.3	15.3	0.8266	0.5996	-5.96	-3.29	23.45	28.93	0.4259	0.1122	0.0388	0.9595	1.5762	1.1592	87.22	88.01
2	44.0	16.7	0.8175	0.5986	-4.62	-1.64	22.58	27.31	0.4156	0.0996	0.0349	0.9646	1.5587	1.1569	86.19	87.02
3	43.7	16.9	0.8062	0.6031	-4.23	-0.95	21.09	26.80	0.4013	0.0701	0.0251	0.9756	1.5662	1.1551	88.15	88.87
4	43.2	18.0	0.7855	0.6030	-4.95	-0.84	18.24	25.23	0.3861	0.0428	0.0162	0.9857	1.5782	1.1528	91.12	91.67
5	44.8	21.2	0.7589	0.5938	-6.97	-1.93	16.62	23.61	0.3774	0.0362	0.0144	0.9885	1.5830	1.1553	90.02	90.64
6	46.4	23.1	0.7337	0.5832	-11.81	-5.99	14.97	23.29	0.3770	0.0458	0.0192	0.9862	1.5862	1.1618	87.09	87.90
7	49.8	24.1	0.7094	0.5717	-15.96	-9.69	16.32	25.73	0.3901	0.0545	0.0238	0.9844	1.5886	1.1769	79.92	81.18
8	51.8	24.2	0.6923	0.5597	-17.05	-10.67	17.27	27.61	0.4028	0.0557	0.0247	0.9846	1.5852	1.1832	76.80	78.25
9	54.4	23.5	0.6674	0.5284	-17.42	-10.94	17.58	30.97	0.4449	0.0780	0.0353	0.9798	1.5593	1.1882	71.92	73.60

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	932.1	696.0	666.4	671.2	651.6	184.3	51.25	57.35	0.0550	7.833	8.492
2	922.1	694.3	662.3	664.9	641.6	199.7	51.25	57.12	0.1083	7.150	7.583
3	910.1	698.6	656.9	668.3	630.0	203.7	51.09	57.75	0.1610	6.457	6.717
4	888.4	697.8	647.1	663.7	608.7	215.7	51.14	58.03	0.3151	4.292	4.330
5	862.6	688.8	611.9	642.1	608.0	249.2	49.20	56.53	0.5165	1.427	1.425
6	839.1	679.0	578.9	624.6	607.4	266.3	47.28	55.13	0.7145	-1.365	-1.426
7	819.2	670.7	523.8	612.4	625.7	273.4	43.27	53.60	0.8603	-3.527	-3.750
8	803.3	659.2	496.7	601.3	631.4	270.2	40.55	52.33	0.9080	-4.327	-4.641
9	778.2	625.6	452.5	573.9	633.1	249.1	36.83	49.52	0.9548	-5.212	-5.645
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1	PO/PO STAGE	EFF-AD STAGE %	EFF-P STAGE %
	10969.60	87.01	39.46				1.1623	0.9821	1.5784	85.80	86.68



## AIRFOIL AERODYNAMIC SUMMARY PRINT

90 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 90 POINT NO 3

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2		
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN		
1	148.4	273.1	146.4	181.5	24.2	204.0	246.7	254.0	266.3	188.3	-222.4	-50.0	158.70	229.04	0.0376	0.0901		
2	157.3	267.8	154.9	178.0	27.5	200.1	256.1	261.0	276.1	188.1	-228.6	-60.9	168.44	226.79	0.0180	0.0742		
3	159.5	262.1	156.7	174.4	29.8	195.7	265.3	268.0	282.8	188.8	-235.5	-72.4	170.37	223.93	0.0011	0.0596		
4	162.2	252.3	158.4	170.3	35.1	186.2	291.8	289.1	301.7	199.0	-256.8	-103.0	171.93	223.61	-0.0448	0.0179		
5	163.2	241.7	157.7	159.5	41.9	181.7	325.0	317.2	324.0	209.3	-283.0	-135.5	171.16	213.61	-0.0990	-0.0365		
6	161.7	233.0	155.1	149.6	45.7	178.7	355.8	345.3	346.8	223.9	-310.2	-166.6	168.72	203.19	-0.1448	-0.0895		
7	158.5	226.7	151.9	134.7	45.5	182.3	377.4	366.4	365.0	228.1	-331.9	-184.0	165.35	182.99	-0.1708	-0.1252		
8	155.7	221.2	149.2	123.5	44.6	183.5	384.2	373.4	370.9	226.5	-339.5	-189.9	162.34	167.10	-0.1752	-0.1336		
9	153.3	211.7	146.9	105.9	43.9	183.3	390.7	380.4	376.6	223.7	-346.8	-197.1	159.73	142.67	-0.1722	-0.1375		
SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P,	P02/ P01	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
1	9.4	48.4	56.59	15.42	0.4445	0.7909	0.7977	0.5453	-0.63	5.64	12.90	41.17	0.5007	0.0534	0.0155	1.6422	96.22	96.47
2	10.1	48.4	55.85	18.91	0.4724	0.7747	0.8292	0.5442	0.47	6.60	11.46	36.94	0.5138	0.0825	0.0240	1.6118	93.67	94.08
3	10.8	48.3	56.35	22.57	0.4793	0.7570	0.8499	0.5453	1.59	7.57	11.75	33.78	0.5181	0.0844	0.0245	1.5978	93.16	93.60
4	12.5	47.5	58.35	31.15	0.4878	0.7268	0.9072	0.5732	3.49	9.17	11.11	27.19	0.5053	0.0601	0.0171	1.5931	94.48	94.83
5	14.9	48.6	60.89	40.26	0.4908	0.6930	0.9746	0.6000	3.93	8.81	9.11	20.63	0.5034	0.0666	0.0179	1.5894	93.16	93.59
6	16.4	49.9	63.45	47.92	0.4863	0.6643	1.0428	0.6382	4.13	8.38	6.86	15.53	0.4942	0.0865	0.0216	1.5906	90.37	90.98
7	16.7	53.4	65.45	53.65	0.4762	0.6404	1.0965	0.6443	4.01	7.51	6.10	11.80	0.5172	0.1513	0.0346	1.5937	83.07	84.14
8	16.7	55.9	66.32	56.85	0.4674	0.6219	1.1132	0.6368	4.02	7.26	7.43	9.47	0.5327	0.1845	0.0394	1.5866	79.43	80.72
9	16.7	59.9	67.08	61.67	0.4598	0.5922	1.1297	0.6259	3.61	6.59	10.63	5.41	0.5493	0.2231	0.0418	1.5642	75.06	76.57
SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE	TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN	
1	486.8	895.9	480.3	595.6	79.5	669.3	809.3	833.4	873.6	617.8	-729.8	-164.1	32.50	46.91	2.153	5.164	0.0500	
2	516.1	878.8	508.1	584.1	90.3	656.6	840.3	856.4	905.9	617.3	-750.0	-199.9	34.50	46.45	1.030	4.250	0.1000	
3	523.4	859.9	514.1	572.1	97.9	642.0	870.5	879.5	928.0	619.4	-772.6	-237.4	34.89	45.86	0.061	3.417	0.1499	
4	532.2	827.7	519.6	558.6	115.1	610.8	957.5	948.6	989.8	652.8	-842.4	-337.8	35.21	45.80	-2.565	1.025	0.3000	
5	535.4	793.2	517.4	523.2	137.6	596.1	1066.2	1040.8	1063.0	686.7	-928.6	-444.7	35.05	43.75	-5.674	-2.090	0.5000	
6	530.6	764.6	509.0	490.8	149.8	586.3	1167.5	1133.0	1137.8	734.6	-1017.6	-546.7	34.55	41.62	-8.298	-5.125	0.7000	
7	520.1	743.9	498.3	442.1	149.1	598.2	1238.1	1202.1	1197.6	748.4	-1089.0	-603.9	33.87	37.48	-9.788	-7.172	0.8500	
8	510.9	725.7	489.5	405.1	146.5	602.1	1260.5	1225.2	1216.8	743.2	-1114.0	-623.0	33.25	34.22	-10.035	-7.655	0.9000	
9	503.0	694.6	481.9	347.4	144.0	601.5	1281.8	1248.2	1235.7	734.1	-1137.8	-646.7	32.71	29.22	-9.868	-7.877	0.9500	
	WCI/A1		WCI/A1						T02/T01	P02/P01	EFF-AD	EFF-P						
	LBM/SEC		KG/SEC								ROTOR	ROTOR						
	SOFT		SQM								%	%						
	34.06		166.20						1.1585	1.5940	89.90	90.54						

# AIRFOIL AERODYNAMIC SUMMARY PRINT

90 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 104 SPEED CODE 90 POINT NO 3

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	286.0	222.1	206.6	214.0	197.8	59.3	252.88	286.67	0.1362	0.1480
2	282.7	221.7	204.9	212.2	194.8	64.2	252.24	285.88	0.1237	0.1318
3	278.7	223.0	202.8	213.1	191.1	65.5	250.83	289.05	0.1108	0.1162
4	272.2	221.9	200.8	210.8	183.7	69.2	252.49	289.40	0.0711	0.0733
5	263.6	217.9	191.1	202.9	181.5	79.4	244.52	280.52	0.0207	0.0221
6	255.2	212.8	180.4	195.4	180.6	84.2	234.38	270.81	-0.0270	-0.0272
7	248.9	209.6	165.7	191.1	185.7	86.2	215.70	262.70	-0.0630	-0.0668
8	243.8	206.2	155.8	187.8	187.5	85.3	202.37	256.74	-0.0763	-0.0818
9	234.9	195.4	140.9	178.9	188.0	78.5	182.26	242.47	-0.0912	-0.0988

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	%EFF-A TOT-STG	%EFF-P TOT-STG
1	43.6	15.5	0.8335	0.6301	-6.57	-3.90	23.59	28.18	0.3899	0.1170	0.0404	0.9572	1.5696	1.1581	86.96	87.76
2	43.4	16.8	0.8234	0.6296	-5.18	-2.20	22.70	26.64	0.3776	0.0992	0.0348	0.9644	1.5527	1.1557	86.03	86.87
3	43.2	17.0	0.8110	0.6342	-4.73	-1.46	21.23	26.16	0.3619	0.0655	0.0234	0.9770	1.5604	1.1536	88.26	88.97
4	42.4	18.1	0.7909	0.6317	-5.76	-1.65	18.40	24.26	0.3477	0.0438	0.0165	0.9852	1.5694	1.1506	91.24	91.78
5	43.5	21.4	0.7625	0.6190	-8.26	-3.22	16.79	22.15	0.3372	0.0399	0.0159	0.9873	1.5692	1.1521	90.35	90.94
6	45.0	23.3	0.7340	0.6022	-13.15	-7.33	15.19	21.73	0.3395	0.0551	0.0231	0.9834	1.5642	1.1566	87.05	87.84
7	48.3	24.3	0.7090	0.5889	-17.48	-11.21	16.55	23.98	0.3523	0.0654	0.0285	0.9813	1.5643	1.1706	79.94	81.15
8	50.3	24.4	0.6913	0.5771	-18.59	-12.21	17.50	25.84	0.3633	0.0648	0.0287	0.9821	1.5610	1.1767	76.78	78.18
9	53.1	23.7	0.6625	0.5438	-18.71	-12.23	17.81	29.44	0.4038	0.0827	0.0373	0.9788	1.5325	1.1814	71.50	73.15

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	938.5	728.6	678.0	702.1	648.9	194.6	51.79	58.71	0.0550	7.804	8.478
2	927.6	727.4	672.4	696.2	639.0	210.7	51.66	58.55	0.1083	7.087	7.549
3	914.3	731.5	665.4	699.2	627.1	215.0	51.37	59.20	0.1610	6.351	6.656
4	893.0	728.0	658.9	691.7	602.8	226.9	51.71	59.27	0.3151	4.075	4.197
5	864.8	714.9	627.0	665.7	595.6	260.6	50.08	57.45	0.5165	1.183	1.266
6	837.4	698.2	591.8	641.2	592.5	276.2	48.00	55.46	0.7145	-1.544	-1.561
7	816.6	687.8	543.5	627.0	609.4	282.8	44.18	53.80	0.8603	-3.610	-3.828
8	800.0	676.6	511.3	616.1	615.3	279.8	41.45	52.58	0.9080	-4.370	-4.687
9	770.8	641.0	482.3	587.0	616.8	257.6	37.33	49.66	0.9548	-5.223	-5.662
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1	PO/PO STAGE	EFF-AD STAGE	EFF-P STAGE
	10969.60	88.34	40.06				1.1585	0.9807	1.5632	85.90	86.75

## AIRFOIL AERODYNAMIC SUMMARY PRINT

90 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 90 POINT NO 4

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	141.1	270.9	139.2	176.1	22.5	205.9	246.7	254.0	263.9	182.5	-224.1	-43.1	152.71	224.52	0.0369	0.0904
2	150.0	265.7	147.8	173.1	25.5	201.5	256.1	261.0	273.9	183.1	-230.6	-59.5	162.61	222.96	0.0167	0.0748
3	152.0	260.5	149.5	169.6	27.6	197.7	265.3	268.0	280.8	183.6	-237.7	-70.3	164.38	220.17	-0.0009	0.0605
4	154.3	251.3	150.8	164.3	33.0	190.2	291.8	289.1	299.6	191.7	-258.9	-98.9	165.57	217.95	-0.0488	0.0191
5	155.1	242.6	149.7	151.0	40.6	189.8	325.0	317.2	321.3	197.6	-284.3	-127.4	164.41	204.37	-0.1040	-0.0353
6	153.7	236.9	147.1	141.3	44.4	190.2	355.8	345.3	344.5	209.9	-311.5	-155.2	161.89	194.12	-0.1497	-0.0896
7	150.5	230.9	143.9	124.4	44.0	194.6	377.4	366.4	363.1	212.2	-333.3	-171.8	158.54	171.15	-0.1742	-0.1256
8	147.7	225.9	141.2	113.4	43.2	195.4	384.2	373.4	369.1	211.1	-341.0	-178.0	155.48	155.69	-0.1770	-0.1335
9	145.2	218.9	138.9	99.2	42.4	195.2	390.7	380.4	375.0	210.2	-348.3	-185.3	152.87	135.93	-0.1725	-0.1371

SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PO2/	XEFF-A	XEFF-B
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	9.2	49.5	58.09	15.30	0.4218	0.7827	0.7890	0.5274	0.87	7.14	12.78	42.79	0.5222	0.0662	0.0193	1.6508	95.45	95.76
2	9.8	49.4	57.31	18.99	0.4496	0.7667	0.8208	0.5283	1.93	8.05	11.53	38.32	0.5324	0.0903	0.0263	1.6224	93.26	93.71
3	10.5	49.4	57.82	22.55	0.4558	0.7506	0.8419	0.5290	3.07	9.05	11.73	35.28	0.5381	0.0927	0.0269	1.6119	92.72	93.19
4	12.3	49.2	59.80	31.04	0.4631	0.7217	0.8989	0.5506	4.95	10.62	11.00	28.76	0.5331	0.0752	0.0214	1.6118	93.36	93.80
5	15.2	51.4	62.26	40.05	0.4655	0.6923	0.9644	0.5640	5.30	10.18	8.90	22.21	0.5462	0.0929	0.0251	1.6186	91.02	91.61
6	16.8	53.2	64.75	47.52	0.4610	0.6715	1.0334	0.5948	5.44	9.69	6.46	17.24	0.5457	0.1185	0.0298	1.6367	87.83	88.64
7	17.1	57.3	66.70	53.95	0.4511	0.6482	1.0883	0.5955	5.25	8.75	6.40	12.75	0.5730	0.1849	0.0420	1.6450	80.94	82.22
8	17.0	59.8	67.55	57.38	0.4423	0.6313	1.1055	0.5899	5.25	8.49	7.97	10.17	0.5862	0.2137	0.0450	1.6405	78.00	79.47
9	17.0	63.0	68.29	61.74	0.4348	0.6091	1.1224	0.5847	4.82	7.80	10.70	6.55	0.5974	0.2432	0.0454	1.6276	74.94	76.59

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT	TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN	
1	462.8	888.8	456.9	577.7	73.9	675.5	809.3	833.4	865.7	598.9	-735.4	-157.3	31.28	45.98	2.115	5.178	0.0500	
2	492.2	871.7	485.0	568.0	83.8	661.3	840.3	856.4	898.6	600.6	-756.5	-195.2	33.30	45.66	0.955	4.283	0.1600	
3	498.7	854.7	490.4	556.5	90.7	648.8	870.5	879.5	921.2	602.4	-779.8	-230.7	33.67	45.09	-0.054	3.467	0.1499	
4	506.4	824.6	494.7	538.9	108.2	624.2	857.5	948.6	982.9	629.1	-849.3	-324.5	33.91	44.64	-2.794	1.097	0.3000	
5	508.9	795.8	491.1	495.6	133.4	622.7	1066.2	1040.8	1054.3	648.4	-932.9	-418.1	33.67	41.86	-5.959	-2.024	0.5000	
6	504.1	777.3	482.7	463.6	145.5	623.9	1167.5	1133.0	1130.2	688.5	-1022.0	-509.1	33.16	39.76	-8.576	-5.132	0.7000	
7	493.8	757.7	472.1	408.3	144.5	638.3	1238.2	1202.1	1191.2	696.1	-1093.7	-563.8	32.47	35.05	-9.982	-7.195	0.8500	
8	484.5	741.3	463.3	372.1	141.6	641.1	1260.5	1225.2	1211.0	692.6	-1118.9	-584.1	31.84	31.89	-10.144	-7.648	0.9000	
9	476.6	718.3	455.8	325.5	139.1	640.3	1281.9	1248.2	1230.4	689.6	-1142.8	-607.9	31.31	27.84	-9.886	-7.856	0.9500	
	WC1/A1	WC1/A1								TO2/TO1	PO2/PO1	EFF-AD	EFF-P					
	LBM/SEC	KG/SEC										ROTOR	ROTOR					
	SOFT	SQM										%	%					
	32.72	159.66																
										1.1687	1.6265	88.35	89.12					

# AIRFOIL AERODYNAMIC SUMMARY PRINT

90 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 104 SPEED CORR 90 POINT NO 4

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	280.9	198.1	197.6	191.1	199.6	52.1	246.25	269.12	0.1377	0.1488
2	277.5	197.1	196.3	189.0	196.1	55.7	246.10	267.51	0.1268	0.1335
3	273.8	198.1	194.1	189.8	193.1	56.6	244.65	269.92	0.1157	0.1190
4	267.8	199.0	191.2	189.8	187.6	60.0	244.79	272.82	0.0806	0.0790
5	261.3	198.5	179.9	185.7	189.5	70.4	234.22	268.57	0.0322	0.0297
6	256.5	198.7	170.1	182.9	191.9	77.9	224.76	265.10	-0.0174	-0.0202
7	250.9	197.6	154.0	181.1	198.1	78.9	204.04	260.37	-0.0579	-0.0623
8	246.3	194.2	144.4	177.9	199.6	77.7	190.94	254.47	-0.0731	-0.0788
9	239.8	184.9	132.0	170.7	200.1	71.0	174.27	242.12	-0.0898	-0.0974

SL	B-1	B-2	M-1	M-2	INCS	INCH	DEV	TURN	D-FAC	OMEGA-B	LOSS-P	PO2/	PO/PO	TO/TO	XEFF-A	XEFF-P
	DEGREE	DEGREE			DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	STAGE	STAGE	TOT-STG	TOT-STG
1	45.2	15.2	0.8153	0.5567	-5.03	-2.36	23.36	29.95	0.4761	0.1086	0.0376	0.9616	1.5862	1.1612	87.40	88.19
2	44.9	16.4	0.8050	0.5544	-3.73	-0.75	22.28	28.51	0.4685	0.0978	0.0344	0.9661	1.5669	1.1589	86.15	86.99
3	44.8	16.6	0.7936	0.5576	-3.18	0.10	20.76	28.19	0.4571	0.0723	0.0259	0.9754	1.5723	1.1576	87.58	88.34
4	44.4	17.5	0.7746	0.5608	-3.73	0.38	17.79	26.89	0.4418	0.0456	0.0173	0.9851	1.5877	1.1564	90.25	90.87
5	46.5	20.7	0.7515	0.5581	-5.31	-0.26	16.17	25.72	0.4325	0.0345	0.0138	0.9892	1.6005	1.1617	88.94	89.65
6	48.5	23.1	0.7327	0.5564	-9.73	-3.91	14.95	25.39	0.4278	0.0416	0.0175	0.9875	1.6151	1.1708	85.95	86.86
7	52.1	23.6	0.7098	0.5488	-13.63	-7.36	15.82	28.56	0.4424	0.0471	0.0207	0.9865	1.6226	1.1870	79.28	80.64
8	54.1	23.6	0.6936	0.5374	-14.75	-8.37	16.67	30.51	0.4567	0.0501	0.0223	0.9861	1.6200	1.1934	76.41	77.94
9	56.6	22.6	0.6720	0.5090	-15.23	-8.80	16.70	33.99	0.4999	0.0728	0.0331	0.9809	1.5979	1.1988	72.07	73.84

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	PCT TE	EPSI-1	EPSI-2
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	SPAN	DEGREE	DEGREE
1	921.6	649.8	648.5	626.9	654.9	171.0	50.44	55.12	0.0550	7.888	8.523
2	910.4	646.6	644.0	620.3	643.5	182.7	50.40	54.79	0.1083	7.263	7.648
3	898.4	649.8	637.0	622.7	633.6	185.8	50.11	55.28	0.1610	6.628	6.816
4	878.8	653.0	627.2	622.6	615.5	196.9	50.13	55.88	0.3151	4.620	4.527
5	857.3	651.4	590.4	609.2	621.6	230.9	47.97	55.01	0.5165	1.846	1.701
6	841.4	652.1	558.0	600.0	629.7	255.5	46.03	54.29	0.7145	-3.998	-1.158
7	823.3	648.2	505.4	594.2	649.9	259.0	41.79	53.33	0.8603	-3.318	-3.572
8	808.3	637.1	473.7	583.8	654.9	255.1	39.11	52.12	0.9080	-4.191	-4.518
9	786.7	606.5	433.2	560.0	656.7	232.9	35.69	49.59	0.9548	-5.147	-5.583
	NCORR	WCORR	WCORR				TO/TO	PO2/PO1	PO/PO	EFF-AD	EFF-P
	INLET	INLET	INLET				STAGE	STAGE	STAGE	STAGE	STAGE
	RPM	LBM/SEC	KG/SEC								
	10969.80	84.86	38.48				1.1687	0.9829	1.5987	85.01	85.96

## AIRFOIL AERODYNAMIC SUMMARY PRINT

### 90 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 90 POINT NO 5

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	134.7	270.1	133.0	172.4	21.5	208.0	246.5	253.8	261.4	178.4	-225.0	-45.9	147.28	221.20	0.0362	0.0904
2	143.5	264.8	141.4	169.5	24.3	203.4	256.0	260.9	271.4	179.0	-231.7	-57.5	157.08	219.68	0.0151	0.0748
3	145.4	259.7	143.0	165.7	26.5	200.0	265.2	267.9	278.2	179.1	-238.7	-67.9	158.70	216.49	-0.0032	0.0697
4	147.5	251.5	144.1	159.9	31.6	194.2	291.7	288.9	297.3	185.9	-260.1	-94.8	159.76	213.51	-0.0531	0.0193
5	148.0	245.5	143.0	147.7	38.4	196.0	324.8	317.0	320.1	191.0	-286.4	-121.0	158.58	201.14	-0.1123	-0.0368
6	146.4	240.4	140.2	133.4	42.1	200.0	355.6	345.1	343.4	197.1	-313.5	-145.1	155.83	183.91	-0.1609	-0.0939
7	143.0	234.0	136.8	113.1	41.7	204.8	377.1	366.2	362.3	197.0	-335.5	-161.3	152.24	156.26	-0.1828	-0.1292
8	140.0	230.1	134.0	103.1	40.8	205.7	383.9	373.2	368.4	196.7	-343.2	-167.5	149.06	142.25	-0.1832	-0.1358
9	137.6	224.7	131.7	91.0	40.0	205.5	390.4	380.2	374.4	197.0	-350.4	-174.7	146.40	125.53	-0.1757	-0.1382

SL	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	M-1	M-2	M'-1	M'-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	%EFF-A TOTAL	%EFF-P TOTAL
1	9.2	50.4	59.35	14.92	0.4023	0.7792	0.7803	0.5146	2.13	8.40	12.39	44.43	0.5374	0.0779	0.0227	1.6576	94.79	95.14
2	9.7	50.2	58.56	18.75	0.4294	0.7628	0.8121	0.5156	3.18	9.31	11.30	39.81	0.5470	0.0992	0.0289	1.6306	92.80	93.27
3	10.5	50.4	59.07	22.30	0.4352	0.7470	0.8328	0.5150	4.31	10.30	11.48	36.77	0.5544	0.1017	0.0296	1.6216	92.23	92.74
4	12.4	50.5	61.03	30.65	0.4418	0.7207	0.8904	0.5326	6.18	11.86	10.60	30.39	0.5555	0.0890	0.0254	1.6271	92.40	92.91
5	15.1	52.9	63.52	39.21	0.4434	0.6985	0.9588	0.5434	6.55	11.44	8.06	24.30	0.5752	0.1115	0.0305	1.6472	89.66	90.36
6	16.8	56.2	65.98	47.27	0.4382	0.6778	1.0282	0.5557	6.67	10.92	6.21	18.71	0.5953	0.1587	0.0401	1.6689	84.60	85.66
7	17.0	61.0	67.90	54.83	0.4277	0.6528	1.0837	0.5497	6.45	9.96	7.28	13.07	0.6276	0.2277	0.0506	1.6787	77.87	79.41
8	17.0	63.3	68.74	58.28	0.4186	0.6391	1.1012	0.5464	6.44	9.68	8.87	10.45	0.6380	0.2518	0.0517	1.6790	75.60	77.30
9	16.9	66.0	69.45	62.41	0.4111	0.6218	1.1184	0.5451	5.98	8.96	11.37	7.05	0.6452	0.2753	0.0503	1.6726	73.34	75.18

SI	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	EPSI-1 DEGREE	EPSI-2 DEGREE	PCT TE SPAN
1	442.1	886.3	436.4	565.6	70.5	682.4	808.8	832.8	857.6	585.3	-738.2	-150.5	30.17	45.30	2.072	5.177	0.0500
2	470.9	869.7	464.1	556.1	79.7	667.4	839.8	855.9	890.6	587.2	-760.1	-188.5	32.17	44.99	0.868	4.286	0.1000
3	477.0	852.2	469.0	543.7	86.8	656.2	870.0	878.9	912.9	587.5	-783.1	-222.7	32.50	44.34	-0.183	3.476	0.1499
4	484.0	825.3	472.8	524.7	103.7	637.0	956.9	948.0	975.5	609.9	-853.3	-311.0	32.72	43.73	-3.044	1.106	0.3000
5	485.7	805.4	469.1	484.7	125.9	643.2	1065.6	1040.2	1050.3	626.5	-939.7	-397.0	32.48	41.19	-6.433	-2.111	0.5000
6	480.2	788.7	459.9	437.5	138.2	656.2	1166.8	1132.3	1126.7	646.6	-1028.6	-476.1	31.92	37.67	-9.218	-5.380	0.7000
7	469.0	767.8	448.7	371.2	136.7	672.1	1237.4	1201.4	1188.6	646.5	-1100.7	-529.3	31.18	32.00	-10.476	-7.401	0.8500
8	459.5	754.8	439.6	338.2	133.8	674.8	1259.7	1224.4	1208.7	645.3	-1125.9	-549.6	30.53	29.13	-10.496	-7.781	0.9000
9	451.5	737.3	432.0	298.5	131.2	674.1	1281.1	1247.4	1228.3	646.4	-1149.8	-573.3	29.98	25.71	-10.065	-7.917	0.9500
		WC1/A1 LBM/SEC		WC1/A1 KG/SEC				T02/T01		P02/P01		EFF-AD ROTOR		EFF-P ROTOR			
		SQFT 31.50		SQM 153.71					1.1776	1.6509		% 86.68		% 87.59			

# AIRFOIL AERODYNAMIC SUMMARY PRINT

90 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 104 SPEED CODE 90 POINT NO 5

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	278.0	182.7	191.4	176.5	201.6	47.3	241.18	255.83	0.1388	0.1497
2	274.3	181.1	189.9	173.9	197.9	50.4	240.98	253.65	0.1292	0.1353
3	270.7	181.6	187.5	174.4	195.3	50.9	239.09	254.74	0.1195	0.1218
4	265.5	184.5	184.1	175.8	191.3	56.1	238.59	259.32	0.0881	0.0846
5	261.6	186.0	174.0	172.9	195.4	68.6	229.08	256.19	0.0439	0.0389
6	257.6	189.6	160.6	174.2	201.5	74.8	214.07	258.48	-0.0056	-0.0097
7	251.9	190.0	141.7	174.0	208.3	76.4	189.19	255.97	-0.0511	-0.0551
8	248.4	187.8	132.7	171.8	210.0	75.9	177.16	251.40	-0.0687	-0.0738
9	243.4	180.2	121.8	164.9	210.7	72.8	162.43	239.45	-0.0877	-0.0948

SL	B-1	B-2	M-1	M-2	INCS	INCM	DEV	TURN	O-FAC	OMEGA-B	LOSS-P	PO2/	PO/PO	TO/TO	%EFF-A	%EFF-P
	DEGREE	DEGREE			DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	STAGE	STAGE	TOT-STG	TOT-STG
1	46.4	15.0	0.8047	0.5107	-3.81	-1.14	23.10	31.44	0.5348	0.1067	0.0369	0.9630	1.5960	1.1638	87.21	88.03
2	46.1	16.1	0.7937	0.5063	-2.52	0.46	22.02	29.98	0.5307	0.1005	0.0354	0.9658	1.5751	1.1616	85.78	86.66
3	46.1	16.2	0.7824	0.5083	-1.84	1.44	20.43	29.85	0.5226	0.0798	0.0286	0.9735	1.5786	1.1606	86.77	87.58
4	46.1	17.7	0.7654	0.5166	-2.08	2.03	17.95	28.38	0.5022	0.0523	0.0198	0.9832	1.5987	1.1611	89.06	89.76
5	48.3	21.6	0.7495	0.5190	-3.46	1.59	17.07	26.67	0.4917	0.0520	0.0206	0.9838	1.6179	1.1695	86.95	87.80
6	51.4	23.2	0.7317	0.5264	-6.75	-0.94	15.10	28.21	0.4862	0.0449	0.0188	0.9865	1.6439	1.1828	83.46	84.57
7	55.8	23.7	0.7078	0.5234	-9.98	-3.71	15.95	32.68	0.4926	0.0396	0.0174	0.9886	1.6578	1.2015	77.08	78.64
8	57.7	23.8	0.6949	0.5153	-11.17	-4.79	16.89	33.86	0.5100	0.0447	0.0199	0.9875	1.6593	1.2087	74.58	76.31
9	60.0	23.8	0.6779	0.4921	-11.89	-5.41	17.93	36.15	0.5441	0.0676	0.0305	0.9820	1.6436	1.2151	70.89	72.83

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	PCT TE	EPSI-1	EPSI-2
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	SPAN	DEGREE	DEGREE
1	912.1	599.6	627.9	579.2	661.5	155.1	49.40	52.40	0.0550	7.955	8.574
2	900.0	594.1	623.2	570.6	649.4	165.2	49.35	51.83	0.1083	7.405	7.753
3	888.2	596.0	615.1	572.1	640.7	167.0	48.97	52.17	0.1610	6.849	6.980
4	871.3	605.4	604.2	576.8	627.7	184.1	48.87	53.11	0.3151	5.045	4.848
5	858.4	610.3	570.9	567.2	641.1	225.1	46.92	52.47	0.5165	2.517	2.230
6	845.3	622.0	527.0	571.6	661.0	245.3	43.84	52.94	0.7145	-0.320	-0.553
7	826.6	623.5	464.8	570.9	683.6	250.6	38.75	52.42	0.8603	-2.928	-3.158
8	815.1	616.2	435.4	563.6	689.0	248.9	36.28	51.49	0.9080	-3.938	-4.228
9	798.4	591.3	399.5	540.9	691.3	238.8	33.27	49.04	0.9548	-5.026	-5.434

	NCORR	WCORR	WCORR	TO/TO	PO2/PO1	PO/PO	EFF-AD	EFF-P
	INLET	INLET	INLET	STAGE	STAGE	STAGE	STAGE	STAGE
	RPM	LBM/SEC	KG/SEC					
	10962.90	81.70	37.05	1.1776	0.9816	1.6205	83.25	84.35

## AIRFOIL AERODYNAMIC SUMMARY PRINT

90 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 106 SPEED CODE 90 POINT NO 2

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	149.4	279.7	148.0	184.5	20.0	210.3	236.7	243.8	262.4	187.5	-216.7	-33.5	159.93	230.73	0.0377	0.0897
2	158.5	274.4	156.9	180.9	22.9	206.4	245.8	250.5	272.6	186.2	-222.9	-44.1	170.02	228.44	0.0182	0.0733
3	161.2	268.5	159.2	177.7	25.4	201.2	254.6	257.3	279.1	186.3	-229.3	-56.0	172.50	226.41	0.0014	0.0585
4	164.4	257.9	161.5	174.2	31.0	190.2	280.1	277.5	296.9	194.9	-249.1	-87.3	174.68	227.31	-0.0443	0.0162
5	165.6	247.0	161.2	163.9	38.2	184.8	311.9	303.4	317.6	202.9	-273.7	-119.7	174.26	218.28	-0.0988	-0.0383
6	164.3	237.5	159.0	155.0	41.3	179.9	341.5	331.4	339.7	216.8	-300.2	-151.5	172.21	209.42	-0.1459	-0.0913
7	160.9	230.0	155.6	139.3	41.2	183.0	362.2	351.6	356.7	218.7	-321.0	-168.6	168.73	188.01	-0.1738	-0.1275
8	158.0	223.8	152.8	126.7	40.4	184.5	368.7	358.4	362.1	215.2	-328.3	-173.9	165.57	170.40	-0.1789	-0.1359
9	155.5	211.8	150.4	104.9	39.6	184.0	375.0	365.1	367.5	209.3	-335.3	-181.1	162.83	140.16	-0.1760	-0.1391

SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	P02/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	P01	TOTAL	TOTAL
1	7.7	48.8	55.60	10.29	0.4476	0.8118	0.7864	0.5440	-1.62	4.66	7.77	45.31	0.5087	0.0451	0.0134	1.6596	96.91	97.12
2	8.3	48.8	54.83	13.73	0.4762	0.7950	0.8188	0.5394	-0.54	5.58	6.28	41.10	0.5271	0.0832	0.0249	1.6274	93.83	94.24
3	9.0	48.6	55.22	17.51	0.4846	0.7766	0.8392	0.5390	0.46	6.44	6.69	37.70	0.5318	0.0847	0.0254	1.6118	93.36	93.79
4	10.9	47.5	57.06	26.61	0.4948	0.7441	0.8933	0.5622	2.21	7.88	6.56	30.45	0.5201	0.0581	0.0172	1.6038	94.84	95.18
5	13.4	48.3	59.52	36.05	0.4986	0.7091	0.9561	0.5826	2.55	7.44	4.89	23.47	0.5210	0.0634	0.0181	1.5988	93.72	94.12
6	14.6	49.1	62.12	44.19	0.4943	0.6780	1.0222	0.6188	2.81	7.05	3.13	17.93	0.5110	0.0834	0.0223	1.5962	90.99	91.56
7	14.8	52.6	64.19	50.31	0.4838	0.6506	1.0724	0.6186	2.75	6.25	2.76	13.88	0.5379	0.1513	0.0373	1.5944	83.50	84.54
8	14.8	55.4	65.10	53.80	0.4747	0.6301	1.0877	0.6057	2.80	6.04	4.38	11.30	0.5502	0.1889	0.0435	1.5850	79.50	80.77
9	14.8	60.2	65.90	59.84	0.4667	0.5926	1.1030	0.5857	2.43	5.41	8.81	6.05	0.5828	0.2370	0.0470	1.5524	74.12	75.66

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT	TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN	
1	490.1	917.8	485.6	605.2	65.7	690.1	776.7	799.8	861.0	615.1	-711.0	-109.8	32.75	47.26	2.160	5.138	0.0500	
2	520.1	900.4	514.7	593.4	75.1	677.1	806.5	822.0	894.3	610.9	-731.4	-144.8	34.82	46.79	1.043	4.202	0.1000	
3	528.9	880.9	522.3	583.0	83.2	660.3	835.5	844.0	915.8	611.3	-752.3	-183.8	35.33	46.37	0.082	3.351	0.1499	
4	539.5	846.2	529.9	571.6	101.7	623.9	919.0	910.4	974.0	639.4	-817.3	-286.5	35.78	46.56	-2.541	0.928	0.3000	
5	543.5	810.3	528.8	537.7	125.4	606.2	1023.3	998.9	1042.0	665.8	-897.9	-392.7	35.69	44.71	-5.662	-2.192	0.5000	
6	538.9	779.1	521.6	508.6	135.5	590.2	1120.5	1087.4	1114.6	711.2	-985.0	-497.1	35.27	42.89	-8.359	-5.229	0.7000	
7	528.1	754.6	510.5	456.9	135.1	600.5	1188.3	1153.7	1170.4	717.5	-1053.2	-553.2	34.56	38.51	-9.957	-7.305	0.8500	
8	518.5	734.4	501.3	415.8	132.6	605.3	1209.8	1175.8	1188.1	706.0	-1077.2	-570.5	33.91	34.90	-10.252	-7.787	0.9000	
9	510.2	694.8	493.3	344.0	130.1	603.6	1230.2	1197.9	1205.7	686.7	-1100.2	-594.3	33.35	28.71	-10.082	-7.970	0.9500	
	WC1/A1		WC1/A1							T02/T01	P02/P01	EFF-AD	EFF-P					
	LBM/SEC		KG/SEC									ROTOR	ROTOR					
	SQFT		SQM									%	%					
	34.66		169.14							1.1594	1.6013	90.31	90.93					

# AIRFOIL AERODYNAMIC SUMMARY PRINT

90 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 106 SPEED CODE 90 POINT NO 2

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	293.9	240.1	211.7	229.4	203.9	71.0	255.82	297.48	0.1350	0.1476
2	290.6	240.1	210.0	227.6	200.9	76.5	255.18	297.01	0.1213	0.1310
3	286.4	241.2	208.2	227.5	196.6	80.2	254.44	299.05	0.1075	0.1150
4	279.1	238.0	206.6	221.9	187.7	86.0	256.96	295.32	0.0663	0.0716
5	269.8	232.8	196.7	213.7	184.6	92.2	249.46	286.59	0.0154	0.0201
6	260.2	226.0	186.2	202.5	181.8	100.4	240.08	272.11	-0.0304	-0.0286
7	252.5	222.0	170.4	197.2	186.4	102.0	220.24	263.31	-0.0636	-0.0667
8	247.0	218.2	159.7	194.0	188.5	99.9	205.88	257.60	-0.0760	-0.0812
9	235.6	206.2	141.1	183.7	188.7	93.6	180.94	241.70	-0.0906	-0.0981

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	SEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	P02/ P01	PO/PO STAGE	TO/TO STAGE	%EFF-A TOT-STG	%EFF-P TOT-STG
1	43.8	17.2	0.8588	0.6852	-6.39	-3.72	25.30	26.65	0.3374	0.1250	0.0428	0.9523	1.5769	1.1605	86.59	87.42
2	43.6	18.5	0.8483	0.6858	-5.01	-2.03	24.44	25.08	0.3220	0.1034	0.0359	0.9613	1.5616	1.1586	85.63	86.50
3	43.2	19.4	0.8353	0.6900	-4.70	-1.42	23.56	23.86	0.3020	0.0697	0.0246	0.9745	1.5693	1.1561	88.02	88.75
4	42.2	21.2	0.8129	0.6811	-5.97	-1.85	21.42	21.03	0.2871	0.0589	0.0218	0.9793	1.5704	1.1523	90.37	90.96
5	43.2	23.3	0.7822	0.6645	-8.61	-3.56	18.74	19.85	0.2815	0.0627	0.0246	0.9792	1.5653	1.1533	89.11	89.78
6	44.3	26.4	0.7498	0.6425	-13.86	-8.04	18.27	17.95	0.2754	0.0850	0.0348	0.9736	1.5540	1.1572	85.39	86.27
7	47.6	27.4	0.7206	0.6266	-18.18	-11.91	19.63	20.20	0.2841	0.0914	0.0389	0.9732	1.5523	1.1698	78.82	80.08
8	49.7	27.2	0.7015	0.6133	-19.14	-12.76	20.32	22.46	0.2981	0.0958	0.0414	0.9729	1.5476	1.1762	75.40	76.86
9	52.2	27.0	0.6649	0.5760	-18.67	-12.19	21.11	26.18	0.3303	0.1021	0.0448	0.9737	1.5137	1.1805	69.66	71.37

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	964.4	787.9	694.5	752.6	669.1	233.0	52.39	60.93	0.0550	7.736	8.457
2	953.4	787.9	689.0	746.8	659.0	251.1	52.26	60.83	0.1083	6.952	7.505
3	939.6	791.4	683.3	746.3	644.9	263.2	52.11	61.25	0.1610	6.157	6.590
4	915.7	780.8	677.8	729.0	615.8	282.3	52.63	60.48	0.3151	3.797	4.103
5	885.2	763.7	645.4	701.2	605.8	302.5	51.09	58.70	0.5165	0.883	1.150
6	853.8	741.5	610.8	664.3	596.6	329.5	49.17	55.73	0.7145	-1.745	-1.637
7	828.5	728.5	558.9	647.0	611.5	334.8	45.11	53.52	0.8603	-3.642	-3.821
8	810.5	716.0	524.0	636.6	618.3	327.8	42.17	52.76	0.9080	-4.354	-4.650
9	773.0	676.5	463.1	602.8	619.0	307.1	37.06	49.50	0.9548	-5.189	-5.619
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	P02/P01	PO/PO STAGE	EFF-AD STAGE	EFF-P STAGE
	10528.00	89.90	40.77				1.1594	0.9738	1.5594	84.90	85.81



## AIRFOIL AERODYNAMIC SUMMARY PRINT

70 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 70 POINT NO 1

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	120.3	220.7	117.1	158.7	27.6	153.4	191.8	197.5	201.7	164.8	-164.3	-44.2	132.58	191.06	0.0375	0.0890
2	127.1	217.6	123.6	156.0	29.3	153.6	199.2	203.0	210.1	164.3	-169.9	-51.4	140.30	188.70	0.0179	0.0719
3	128.4	213.7	125.0	155.5	29.8	146.6	206.4	208.5	216.3	167.4	-176.6	-61.9	141.76	189.05	0.0006	0.0562
4	130.0	203.0	126.1	153.2	31.9	133.1	227.0	224.9	232.3	178.6	-195.1	-91.7	142.94	188.45	-0.0479	0.0110
5	130.3	190.0	124.9	143.1	37.2	125.0	252.7	246.7	249.2	187.8	-215.6	-121.7	141.71	177.20	-0.1040	-0.0454
6	128.5	178.3	122.1	133.9	40.1	117.7	276.8	268.6	266.4	201.7	-236.7	-150.8	138.83	166.57	-0.1498	-0.0977
7	125.7	167.4	119.2	121.3	39.6	115.4	293.5	285.0	280.5	208.5	-253.9	-169.6	135.71	150.33	-0.1762	-0.1319
8	122.9	157.9	116.7	109.3	38.8	113.9	298.8	290.4	285.0	207.6	-260.0	-176.5	132.70	134.94	-0.1810	-0.1392
9	120.5	143.8	114.3	90.9	38.0	111.4	303.9	295.9	289.4	205.6	-265.9	-184.5	130.01	111.57	-0.1775	-0.1409

SL	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	M-1	M-2	M'-1	M'-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D FAC	OMEGA-B TOTAL	LOSS-P TOTAL	P02/ P01	%EFF-A TOTAL	%EFF-P TOTAL
1	13.2	44.0	54.45	15.56	0.3579	0.6479	0.6002	0.4837	-2.77	3.51	13.04	38.89	0.3758	0.0370	0.0108	1.3256	97.13	97.24
2	13.3	44.2	53.92	18.26	0.3787	0.6379	0.6262	0.4817	-1.46	4.67	10.80	35.67	0.4004	0.0772	0.0226	1.3115	93.54	93.79
3	13.4	44.3	54.71	21.73	0.3829	0.6263	0.6449	0.4906	-0.05	5.93	10.90	32.98	0.3973	0.0688	0.0201	1.3053	93.82	94.05
4	14.2	41.0	57.15	30.90	0.3878	0.5944	0.6927	0.5229	2.30	7.97	10.85	26.25	0.3749	0.0383	0.0109	1.2883	95.82	95.96
5	16.6	41.1	59.94	40.30	0.3886	0.5550	0.7431	0.5488	2.98	7.86	9.15	19.64	0.3685	0.0486	0.0131	1.2639	93.63	93.84
6	18.2	41.2	62.74	48.26	0.3832	0.5199	0.7940	0.5881	3.43	7.68	7.21	14.48	0.3498	0.0606	0.0150	1.2435	90.71	91.00
7	18.4	43.4	64.89	54.31	0.3744	0.4859	0.8356	0.6052	3.45	6.95	6.76	10.58	0.3597	0.1144	0.0256	1.2254	81.49	82.02
8	18.4	46.1	65.90	58.13	0.3660	0.4569	0.8485	0.6009	3.60	6.84	8.72	7.77	0.3727	0.1503	0.0310	1.2098	75.26	75.91
9	18.4	50.7	66.79	63.71	0.3585	0.4146	0.8613	0.5931	3.31	6.39	12.67	3.08	0.3879	0.1947	0.0340	1.1846	67.07	67.85

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	EPSI-1 DEGREE	EPSI-2 DEGREE	PCT TE SPAN
1	394.7	724.3	384.1	520.9	90.5	503.3	629.4	648.2	661.8	540.6	-538.9	-144.9	27.15	39.13	2.150	5.100	0.0500
2	416.9	713.8	405.7	512.0	96.1	497.4	653.6	666.1	689.4	539.1	-557.4	-168.7	28.73	38.65	1.023	4.122	0.1000
3	421.4	701.2	410.0	510.3	97.6	480.9	677.0	684.0	709.8	549.3	-579.4	-203.1	29.03	38.72	0.032	3.218	0.1499
4	426.7	666.0	413.6	502.8	104.6	436.8	744.7	737.8	762.2	586.0	-640.1	-301.0	29.27	38.60	-2.742	0.629	0.3000
5	427.6	623.3	409.8	469.4	121.9	410.1	829.3	809.5	817.5	616.3	-707.4	-399.4	29.02	36.29	-5.961	-2.599	0.5000
6	421.7	585.0	400.7	439.4	131.4	386.3	908.0	881.2	873.9	661.8	-776.6	-494.9	28.43	34.12	-8.584	-5.597	0.7000
7	412.3	549.2	391.2	397.9	130.1	378.5	963.0	935.0	920.2	684.1	-832.9	-556.4	27.79	30.79	-10.097	-7.558	0.8500
8	403.3	518.0	382.7	358.7	127.2	373.7	980.4	952.9	935.0	681.3	-853.1	-579.2	27.18	27.64	-10.371	-7.975	0.9000
9	395.3	471.7	375.1	298.1	124.6	365.5	997.0	970.8	949.6	674.7	-872.4	-605.3	26.63	22.85	-10.171	-8.075	0.9500
	WC1/A1 LBM/SEC		WC1/A1 KG/SEC				T02/T01		P02/P01		EFF-AD ROTOR		EFF-P ROTOR				
	SQFT		SQM								%		%				
	28.09		137.06						1.0765		1.2637		90.45		90.76		

AIRFOIL AERODYNAMIC SUMMARY PRINT  
70 PERCENT DESIGN SPEED (STATOR PERFORMANCE) RUN NO 104 SPEED CODE 70 POINT NO 1

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	235.7	230.9	182.8	224.2	148.7	55.2	213.64	252.03	0.1344	0.1477
2	234.1	233.0	181.8	225.2	147.5	59.6	212.82	254.78	0.1197	0.1309
3	231.6	234.5	182.1	226.3	143.1	61.3	213.83	257.77	0.1045	0.1148
4	223.3	225.7	180.5	216.2	131.4	65.0	213.83	248.03	0.0607	0.0716
5	210.8	216.1	169.8	203.5	124.9	72.6	202.84	234.54	0.0081	0.0202
6	198.0	204.5	158.2	189.7	119.1	76.4	190.58	218.59	-0.0397	-0.0300
7	186.1	191.3	144.2	175.5	117.6	75.9	173.83	200.77	-0.0713	-0.0687
8	177.2	182.1	133.6	166.7	116.5	73.4	160.52	189.60	-0.0817	-0.0829
9	164.0	169.9	117.6	154.8	114.2	70.1	140.77	175.09	-0.0934	-0.0990

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	%EFF-A TOT-STG	%EFF-P TOT-STG
1	39.0	13.8	0.6959	0.6803	-11.19	-8.52	21.93	25.22	0.1560	0.1705	0.0594	0.9529	1.2613	1.0864	79.45	80.12
2	38.9	14.8	0.6909	0.6874	-9.67	-6.69	20.69	24.15	0.1339	0.1303	0.0461	0.9645	1.2635	1.0858	80.65	81.28
3	38.0	15.1	0.6834	0.6929	-9.90	-6.62	19.30	22.92	0.1103	0.0883	0.0319	0.9764	1.2727	1.0837	85.32	85.82
4	36.0	16.7	0.6587	0.6667	-12.18	-8.07	16.97	19.27	0.0994	0.1019	0.0388	0.9744	1.2529	1.0778	85.58	86.03
5	36.3	19.6	0.6203	0.6372	-15.45	-10.40	15.03	16.72	0.0757	0.1099	0.0442	0.9751	1.2304	1.0735	82.94	83.43
6	37.0	21.9	0.5808	0.6013	-21.20	-15.38	13.81	15.06	0.0642	0.1573	0.0667	0.9681	1.2026	1.0710	76.28	76.90
7	39.2	23.4	0.5431	0.5592	-26.54	-20.28	15.66	15.80	0.0812	0.2363	0.1038	0.9573	1.1727	1.0735	63.44	64.25
8	41.1	23.8	0.5156	0.5307	-27.76	-21.38	16.86	17.30	0.0950	0.2812	0.1250	0.9534	1.1543	1.0744	56.30	57.17
9	44.2	24.4	0.4754	0.4934	-27.69	-21.22	18.50	19.77	0.1023	0.3269	0.1467	0.9530	1.1296	1.0740	47.90	48.80

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	773.3	757.5	599.9	735.5	488.0	181.0	43.76	51.62	0.0550	7.701	8.462
2	768.1	764.4	596.4	739.0	484.0	195.6	43.59	52.18	0.1083	6.857	7.501
3	759.9	769.3	597.5	742.5	469.5	201.2	43.79	52.79	0.1610	5.989	6.577
4	732.6	740.7	592.3	709.3	431.1	213.2	43.79	50.80	0.3151	3.477	4.105
5	691.6	709.0	557.1	667.8	409.9	238.1	41.54	48.04	0.5165	0.462	1.155
6	649.6	671.0	519.0	622.4	390.7	250.5	39.03	44.77	0.7145	-2.277	-1.720
7	610.5	627.6	473.2	576.0	385.8	249.2	35.60	41.12	0.8603	-4.086	-3.938
8	581.4	597.5	438.2	546.8	382.1	241.0	32.88	38.83	0.9080	-4.679	-4.751
9	538.0	557.5	386.0	507.8	374.8	230.1	28.83	35.86	0.9548	-5.352	-5.675
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1	PO/PO STAGE	EFF-AD STAGE %	EFF-P STAGE %
	8531.80	72.85	33.04				1.0765	0.9680	1.2232	77.51	78.14

## 70 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 70 POINT NO 2

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	115.7	217.9	112.9	153.6	25.1	154.5	191.8	197.5	201.3	159.5	-166.7	-43.0	128.70	187.46	0.0371	0.0892
2	122.0	214.7	119.0	151.4	26.8	152.2	199.2	203.0	209.5	159.7	-172.3	-50.8	135.90	185.72	0.0169	0.0722
3	123.1	210.9	120.0	150.1	27.7	148.2	206.3	208.4	215.2	161.8	-178.7	-60.3	136.93	185.02	-0.0010	0.0565
4	124.5	201.5	120.5	145.7	31.6	139.1	226.9	224.8	229.5	169.0	-195.4	-85.7	137.44	181.65	-0.0502	0.0114
5	124.8	188.9	119.1	134.7	37.1	132.5	252.7	246.7	246.3	176.6	-215.6	-114.2	136.04	169.36	-0.1064	-0.0451
6	123.0	177.2	116.4	124.3	39.9	126.3	276.7	268.5	263.9	188.8	-236.8	-142.2	133.12	157.07	-0.1502	-0.0968
7	120.3	168.2	113.7	112.7	39.5	124.8	293.4	284.9	278.2	195.8	-254.0	-160.1	130.17	142.31	-0.1732	-0.1292
8	117.7	161.9	111.2	103.7	38.6	124.3	298.7	290.4	282.9	195.7	-260.2	-166.0	127.25	130.45	-0.1769	-0.1363
9	115.2	151.5	108.9	89.0	37.7	122.6	303.8	295.8	287.5	194.8	-266.1	-173.2	124.58	111.62	-0.1736	-0.1390

SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PU2/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	12.5	45.2	55.81	15.64	0.3440	0.6382	0.5985	0.4672	-1.41	4.87	13.12	40.17	0.4062	0.0331	0.0096	1.3370	97.51	97.61
2	12.7	45.2	55.33	18.57	0.3633	0.6281	0.6235	0.4673	-0.05	6.08	11.12	36.76	0.4249	0.0640	0.0187	1.3244	94.79	95.00
3	13.0	44.7	56.10	21.89	0.3666	0.6167	0.6408	0.4730	1.35	7.33	11.07	34.21	0.4259	0.0599	0.0175	1.3193	94.82	95.02
4	14.7	43.7	58.36	30.45	0.3709	0.5882	0.6837	0.4935	3.51	9.18	10.40	27.91	0.4184	0.0419	0.0120	1.3075	95.75	95.91
5	17.3	44.4	61.11	40.20	0.3717	0.5500	0.7337	0.5142	4.14	9.03	9.05	20.90	0.4177	0.0569	0.0153	1.2871	93.20	93.44
6	18.9	45.3	63.87	48.71	0.3663	0.5144	0.7857	0.5482	4.55	8.80	7.65	15.16	0.4044	0.0775	0.0190	1.2696	89.42	89.77
7	19.2	47.8	65.93	54.72	0.3581	0.4861	0.8280	0.5659	4.49	7.99	7.16	11.21	0.4129	0.1269	0.0283	1.2583	81.91	82.49
8	19.2	50.1	66.91	57.91	0.3500	0.4666	0.8414	0.5642	4.61	7.85	8.50	8.99	0.4244	0.1571	0.0326	1.2560	77.50	78.20
9	19.1	53.9	67.78	62.72	0.3426	0.4353	0.8546	0.5597	4.31	7.29	11.69	5.06	0.4368	0.1932	0.0349	1.2325	71.86	72.68

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	EPSI-1 DEGREE	EPSI-2 DEGREE	PCT TE SPAN
1	379.6	715.0	370.6	504.1	82.5	507.0	629.3	648.0	660.6	523.4	-546.9	-141.0	26.36	38.39	2.124	5.109	0.0500
2	400.4	704.3	390.6	496.8	88.0	499.3	653.4	666.0	687.2	524.0	-565.5	-166.7	27.83	38.04	0.966	4.138	0.1000
3	404.0	692.1	393.7	492.6	90.7	486.1	676.9	683.9	706.1	530.8	-586.2	-197.7	28.05	37.89	-0.059	3.237	0.1499
4	408.6	661.0	395.3	478.0	103.5	456.5	744.6	737.7	753.1	554.5	-641.0	-281.1	28.15	37.20	-2.878	0.651	0.3000
5	409.4	619.8	390.9	441.9	121.7	434.6	829.1	809.3	808.2	579.4	-707.4	-374.7	27.86	34.69	-6.094	-2.584	0.5000
6	403.6	581.4	381.8	407.7	130.8	414.5	907.9	881.0	865.8	619.6	-777.0	-466.5	27.26	32.17	-8.605	-5.544	0.7000
7	394.8	551.9	373.0	369.9	129.5	409.5	962.8	934.8	912.9	642.4	-833.3	-525.2	26.66	29.15	-9.925	-7.403	0.8500
8	386.1	531.1	364.8	340.1	126.6	407.9	980.2	952.7	928.3	642.2	-853.6	-544.8	26.06	26.72	-10.133	-7.811	0.9000
9	378.1	497.1	357.3	292.1	123.7	402.2	996.8	970.6	943.3	639.0	-873.1	-568.4	25.51	22.86	-9.946	-7.964	0.9500
	WC1/AI LBM/SEC	WC1/AI KG/SEC					T02/T01	P02/P01		EFF-AD ROTOR %	EFF-P ROTOR %						
	SQFT 27.00	SQM 131.74							1.0829	1.2878	90.42	90.76					

## 70 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

## AIRFOIL AERODYNAMIC SUMMARY PRINT

RUN NO 104 SPEED CODE 70 POINT NO 2

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	230.4	204.9	175.0	199.9	149.8	45.2	208.42	241.19	0.1353	0.1477
2	228.6	205.8	174.2	200.4	148.1	46.8	208.01	242.94	0.1215	0.1312
3	226.1	207.2	173.8	201.3	144.7	49.4	208.10	245.28	0.1074	0.1154
4	218.9	202.3	170.5	193.7	137.3	58.5	205.92	237.81	0.0652	0.0726
5	207.0	193.4	159.1	181.7	132.4	66.3	194.06	223.96	0.0130	0.0214
6	194.7	183.7	147.0	169.2	127.8	71.5	180.67	208.65	-0.0353	-0.0289
7	185.1	174.5	134.4	158.6	127.3	72.8	165.44	194.58	-0.0686	-0.0683
8	179.0	169.3	126.0	153.7	127.1	71.2	154.82	187.90	-0.0800	-0.0828
9	169.3	160.2	113.4	145.6	125.7	66.7	138.89	177.29	-0.0928	-0.0992

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	%EFF-A TOT-STG	%EFF-P TOT-STG
1	40.5	12.7	0.6779	0.5973	-9.74	-7.07	20.84	27.76	0.2668	0.1278	0.0447	0.9662	1.2904	1.0887	85.21	85.73
2	40.3	13.1	0.6725	0.6003	-8.36	-5.37	19.02	27.15	0.2548	0.1029	0.0367	0.9731	1.2879	1.0880	85.25	85.78
3	39.7	13.7	0.6650	0.6052	-8.26	-4.98	17.93	25.93	0.2340	0.0667	0.0242	0.9829	1.2957	1.0866	88.75	89.15
4	38.8	16.8	0.6431	0.5909	-9.36	-5.25	17.05	22.00	0.2128	0.0535	0.0203	0.9871	1.2892	1.0829	90.85	91.18
5	39.7	20.1	0.6064	0.5640	-12.04	-6.99	15.47	19.69	0.1985	0.0529	0.0212	0.9884	1.2710	1.0802	88.52	88.91
6	41.0	22.9	0.5684	0.5342	-17.17	-11.35	14.81	18.08	0.1890	0.0713	0.0300	0.9860	1.2513	1.0791	83.68	84.19
7	43.4	24.7	0.5376	0.5052	-22.30	-16.04	16.94	18.76	0.2017	0.1072	0.0466	0.9808	1.2343	1.0829	74.88	75.62
8	45.2	24.9	0.5185	0.4891	-23.61	-17.23	17.94	20.38	0.2123	0.1155	0.0509	0.9805	1.2268	1.0850	70.82	71.66
9	47.9	24.6	0.4888	0.4613	-23.91	-17.43	18.74	23.31	0.2315	0.1230	0.0551	0.9814	1.2101	1.0857	65.38	66.30

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	755.8	672.3	574.1	655.7	491.6	148.2	42.69	49.40	0.0550	7.751	8.465
2	750.1	675.2	571.5	657.5	485.9	153.6	42.60	49.76	0.1083	6.964	7.520
3	742.0	679.9	570.1	660.3	474.8	162.0	42.62	50.23	0.1610	6.155	6.615
4	718.2	663.8	559.3	635.4	450.6	192.1	42.17	48.71	0.3151	3.738	4.161
5	679.2	634.6	522.2	596.1	434.4	217.7	39.74	45.87	0.5165	0.746	1.225
6	638.9	602.6	482.2	555.0	419.2	234.7	37.00	42.73	0.7145	-2.020	-1.655
7	607.3	572.5	441.0	520.2	417.5	239.0	33.88	39.85	0.8603	-3.929	-3.916
8	587.3	555.6	413.6	504.2	417.1	233.6	31.71	38.48	0.9080	-4.581	-4.745
9	555.6	525.6	372.1	477.8	412.5	219.0	28.45	36.31	0.9518	-5.317	-5.681
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1	PO/PO STAGE	EFF-AD %	EFF-P %
	8530.10	70.02	31.75				1.0829	0.9834	1.2665	84.23	84.75

## AIRFOIL AERODYNAMIC SUMMARY PRINT

70 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 70 POINT NO 3

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2		
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN		
1	106.6	212.9	104.1	142.9	22.8	157.8	191.8	197.5	198.5	148.3	-169.0	-39.7	119.96	177.05	0.0365	0.0895		
2	113.1	209.9	110.4	141.4	24.4	155.0	199.2	203.0	206.7	149.3	-174.8	-48.0	127.45	176.32	0.0158	0.0729		
3	114.1	207.0	111.3	140.7	25.2	151.7	206.3	208.5	212.6	151.7	-181.2	-56.7	128.43	176.34	-0.0027	0.0576		
4	114.8	199.0	111.2	136.4	28.8	145.0	227.0	224.9	227.2	158.1	-198.2	-72.9	128.20	173.03	-0.0544	0.0124		
5	114.8	188.2	109.6	126.1	34.0	139.7	252.7	246.7	244.7	165.4	-218.8	-107.0	126.56	161.54	-0.1153	-0.0465		
6	112.9	177.9	105.8	112.5	36.4	137.8	276.7	268.6	263.0	172.5	-240.3	-130.8	123.53	144.62	-0.1637	-0.1023		
7	110.0	168.5	103.9	94.2	36.0	139.8	293.5	284.9	277.7	173.1	-257.5	-145.2	120.30	120.66	-0.1825	-0.1329		
8	107.2	164.9	101.3	87.6	35.1	139.7	298.8	290.4	282.5	174.3	-263.7	-150.7	117.23	112.11	-0.1811	-0.1377		
9	104.7	159.7	99.0	79.4	34.2	138.6	303.8	295.9	287.2	176.2	-269.6	-157.3	114.47	101.54	-0.1739	-0.1389		
SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PO2/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	12.3	47.9	58.21	15.55	0.3162	0.6211	0.5891	0.4326	1.09	7.37	13.03	42.76	0.4631	0.0595	0.0173	1.3461	95.80	95.98
2	12.4	47.7	57.69	18.76	0.3359	0.6119	0.6143	0.4354	2.31	8.44	11.31	38.93	0.4756	0.0802	0.0234	1.3357	93.85	94.11
3	12.7	47.2	58.43	21.98	0.3391	0.6030	0.6319	0.4421	3.67	9.66	11.15	36.46	0.4755	0.0726	0.0211	1.3341	94.11	94.35
4	14.5	46.7	60.74	30.35	0.3413	0.5788	0.6754	0.4597	5.89	11.56	10.30	30.39	0.4735	0.0560	0.0160	1.3305	94.78	94.98
5	17.3	47.8	63.43	40.22	0.3412	0.5456	0.7273	0.4794	6.47	11.35	9.07	23.21	0.4756	0.0702	0.0189	1.3184	92.41	92.70
6	18.9	50.6	66.12	49.18	0.3353	0.5130	0.7813	0.4976	6.80	11.05	8.12	16.94	0.4869	0.1212	0.0295	1.3065	85.63	86.16
7	19.2	55.9	68.10	56.92	0.3265	0.4829	0.8246	0.4958	6.66	10.16	9.37	11.18	0.5196	0.1987	0.0419	1.2968	76.21	77.07
8	19.2	57.8	69.04	59.73	0.3182	0.4713	0.8383	0.4984	6.74	9.98	10.32	9.31	0.5252	0.2187	0.0430	1.2954	73.84	74.78
9	19.1	60.1	69.88	63.13	0.3107	0.4555	0.8520	0.5027	6.41	9.39	12.10	6.74	0.5272	0.2371	0.0423	1.2900	71.44	72.45
SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE	
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN	
1	349.6	698.4	341.5	468.7	74.8	517.8	629.4	648.1	651.3	486.5	-554.6	-130.3	24.57	36.26	2.092	5.128	0.0500	
2	371.0	688.5	362.2	464.0	80.0	508.7	653.5	666.1	678.3	490.0	-573.5	-157.4	26.10	36.11	0.905	4.180	0.1000	
3	374.3	679.0	365.1	461.7	82.5	497.9	677.0	684.0	697.7	497.8	-594.5	-186.1	26.30	36.12	-0.152	3.298	0.1499	
4	376.7	653.1	364.7	447.6	94.4	475.6	744.7	737.8	745.5	518.7	-650.3	-262.2	26.26	35.44	-3.116	0.709	0.3000	
5	376.6	617.5	359.7	413.7	111.5	458.4	829.2	809.5	802.9	542.6	-717.8	-351.1	25.92	33.08	-6.606	-2.661	0.5000	
6	370.3	583.6	350.4	369.1	119.6	452.0	908.0	881.2	862.8	566.0	-788.4	-429.1	25.30	29.62	-9.379	-5.863	0.7000	
7	360.8	552.9	340.9	309.0	118.1	458.6	962.9	934.9	911.1	567.8	-844.9	-476.4	24.64	24.71	-10.458	-7.617	0.8500	
8	351.8	541.0	332.4	287.4	115.2	458.3	980.3	952.9	926.8	572.0	-865.1	-494.6	24.01	22.96	-10.379	-7.890	0.9000	
9	343.6	524.0	324.7	260.5	112.3	454.6	996.9	970.8	942.3	578.2	-884.6	-516.2	23.44	20.80	-9.961	-7.960	0.9500	
	WC1/A1	WC1/A1	WC1/A1	WC1/A1					TO2/TO1	PO2/PO1	EFF-AD	EFF-P						
	LBM/SEC	KG/SEC									ROTOR	ROTOR						
	SQFT	SQM									%	%						
	25.08	122.38							1.0931	1.3181	88.21	88.66						

# AIRFOIL AERODYNAMIC SUMMARY PRINT

70 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 104 SPEED CODE 70 POINT NO 3

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	221.9	174.6	160.7	169.8	153.0	40.4	195.86	218.31	0.1367	0.1485
2	220.3	175.3	160.5	170.1	150.9	42.6	196.27	219.41	0.1245	0.1330
3	218.5	177.4	160.5	171.8	148.2	44.2	197.01	222.64	0.1121	0.1182
4	212.2	175.2	157.5	168.4	143.0	48.4	195.05	219.64	0.0741	0.0784
5	202.8	168.2	147.1	159.2	139.6	54.3	184.00	208.45	0.0259	0.0309
6	192.2	160.7	132.6	149.8	139.1	58.3	166.79	195.83	-0.0209	-0.0172
7	182.7	154.4	114.5	141.2	142.4	62.6	143.74	183.27	-0.0598	-0.0603
8	179.2	152.0	108.2	138.8	142.8	61.9	135.73	179.70	-0.0748	-0.0778
9	174.2	145.5	100.7	132.8	142.1	59.4	126.26	171.27	-0.0908	-0.0970

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	XEFF-A TOT-STG	XEFF-P TOT-STG
1	43.5	13.4	0.6496	0.5030	-6.72	-4.05	21.50	30.13	0.3885	0.1031	0.0359	0.9746	1.3111	1.0925	87.02	87.51
2	43.1	14.0	0.6447	0.5055	-5.48	-2.50	19.94	29.10	0.3776	0.0874	0.0311	0.9787	1.3071	1.0918	86.62	87.12
3	42.6	14.4	0.6393	0.5120	-5.32	-2.04	18.56	28.24	0.3602	0.0587	0.0213	0.9859	1.3152	1.0912	89.32	89.73
4	42.2	16.0	0.6216	0.5057	-5.96	-1.85	16.27	26.18	0.3489	0.0409	0.0156	0.9906	1.3178	1.0897	91.50	91.83
5	43.5	18.8	0.5907	0.4848	-8.30	-3.26	14.26	24.63	0.3485	0.0384	0.0155	0.9919	1.3079	1.0889	89.68	90.06
6	46.4	21.3	0.5569	0.4615	-11.81	-5.99	13.15	25.11	0.3573	0.0442	0.0188	0.9916	1.2964	1.0921	83.65	84.24
7	51.2	23.9	0.5257	0.4409	-14.56	-8.29	16.16	27.29	0.3679	0.0397	0.0174	0.9931	1.2879	1.1004	74.70	75.59
8	52.8	24.0	0.5142	0.4332	-16.02	-9.64	17.11	28.79	0.3774	0.0418	0.0185	0.9930	1.2875	1.1036	72.30	73.27
9	54.7	24.1	0.4988	0.4136	-17.19	-10.71	18.22	30.55	0.4043	0.0597	0.0268	0.9906	1.2783	1.1057	68.82	69.88

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	728.1	572.7	527.3	557.1	502.1	132.6	40.11	44.71	0.0550	7.832	8.509
2	722.7	575.2	526.5	557.9	495.0	139.8	40.20	44.94	0.1083	7.136	7.618
3	716.9	582.1	526.7	563.8	486.3	144.9	40.35	45.60	0.1610	6.423	6.775
4	698.1	574.8	516.8	552.5	469.3	158.7	39.95	44.98	0.3151	4.245	4.493
5	665.4	552.0	482.8	522.4	457.9	178.3	37.69	42.69	0.5165	1.484	1.773
6	630.7	527.3	435.2	491.4	456.5	191.2	34.16	40.11	0.7145	-1.196	-0.987
7	599.5	506.6	375.7	463.2	467.2	205.3	29.44	37.53	0.8603	-3.426	-3.457
8	587.8	498.7	355.0	455.5	468.5	203.2	27.80	36.80	0.9080	-4.284	-4.457
9	571.5	477.4	330.4	435.8	466.2	195.0	25.86	35.08	0.9548	-5.202	-5.560
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1	PO/PO STAGE	EFF-AD STAGE	EFF-P STAGE
	8531.40	65.05	29.50				1.0931	0.9893	1.3039	84.62	85.19

## AIRFOIL AERODYNAMIC SUMMARY PRINT

70 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 70 POINT NO 5

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	101.4	211.4	99.1	139.2	21.4	159.1	191.8	197.5	197.2	144.4	-170.5	-38.5	114.89	173.63	0.0352	0.0892
2	107.8	208.3	105.3	137.8	23.0	156.2	199.2	203.0	205.3	145.5	-176.2	-46.8	122.28	172.91	0.0134	0.0726
3	108.7	205.6	106.0	136.6	23.8	153.7	206.3	208.5	211.1	147.1	-182.5	-54.8	123.11	172.23	-0.0060	0.0572
4	108.9	198.6	105.5	132.6	27.2	147.9	227.0	224.9	225.9	153.4	-199.8	-77.0	122.43	169.34	-0.0612	0.0109
5	108.6	187.9	103.8	120.2	31.8	144.4	252.7	246.7	244.2	157.8	-221.0	-102.3	120.60	154.74	-0.1269	-0.0509
6	106.5	179.3	100.8	102.3	34.4	147.2	276.8	268.6	262.5	158.7	-242.4	-121.3	117.26	131.95	-0.1746	-0.1076
7	103.6	172.9	97.8	86.2	34.0	149.9	293.5	285.0	277.3	160.2	-259.5	-135.1	113.95	111.02	-0.1865	-0.1353
8	100.9	169.8	95.3	80.7	33.1	149.4	298.8	290.4	282.2	162.5	-265.7	-141.0	110.95	104.00	-0.1827	-0.1390
9	98.4	165.7	92.9	74.1	32.2	148.2	303.9	295.9	287.1	165.3	-271.6	-147.7	108.17	95.52	-0.1738	-0.1394

SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PO2/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	12.1	48.8	59.77	15.46	0.3005	0.6159	0.5846	0.4207	2.55	8.83	12.94	44.31	0.4838	0.0701	0.0204	1.3509	95.18	95.39
2	12.3	48.6	59.11	18.77	0.3198	0.6065	0.6093	0.4236	3.73	9.86	11.32	40.34	0.4951	0.0868	0.0253	1.3415	93.53	93.79
3	12.7	48.4	59.84	21.88	0.3226	0.5981	0.6267	0.4280	5.08	11.07	11.06	37.96	0.4989	0.0824	0.0240	1.3409	93.52	93.79
4	14.5	48.1	62.20	30.12	0.3234	0.5766	0.6707	0.4452	7.35	13.02	10.08	32.07	0.4991	0.0655	0.0188	1.3413	94.10	94.34
5	17.1	50.1	64.92	40.32	0.3223	0.5431	0.7248	0.4563	7.95	12.84	9.17	24.60	0.5163	0.0989	0.0266	1.3299	89.79	90.20
6	18.9	55.1	67.54	49.75	0.3159	0.5148	0.7789	0.4557	8.23	12.48	8.69	17.79	0.5552	0.1763	0.0424	1.3242	80.87	81.62
7	19.3	60.0	69.43	57.36	0.3072	0.4932	0.8224	0.4570	7.99	11.49	9.81	12.07	0.5820	0.2403	0.0500	1.3244	73.89	74.91
8	19.2	61.5	70.33	60.11	0.2990	0.4835	0.8367	0.4625	8.03	11.27	10.70	10.22	0.5830	0.2545	0.0495	1.3249	72.29	73.37
9	19.2	63.3	71.14	63.27	0.2915	0.4707	0.8506	0.4695	7.67	10.66	12.24	7.87	0.5809	0.2674	0.0475	1.3223	70.68	71.81

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN
1	332.6	693.5	325.1	456.6	70.1	522.0	629.4	648.1	647.0	473.7	-559.3	-126.2	23.53	35.56	2.019	5.113	0.0500
2	353.6	683.5	345.4	452.0	75.4	512.6	653.5	666.1	673.5	477.4	-578.1	-153.4	25.04	35.41	0.768	4.160	0.1000
3	356.5	674.5	347.9	448.0	78.1	504.2	677.0	684.0	692.6	482.8	-598.9	-179.8	25.21	35.27	-0.346	3.276	0.1499
4	357.4	651.7	346.1	435.2	89.2	485.2	744.7	737.8	741.3	503.2	-655.5	-252.6	25.07	34.68	-3.505	0.626	0.3000
5	356.2	616.4	340.7	394.4	104.2	473.8	829.2	809.5	801.1	517.9	-725.1	-335.7	24.70	31.69	-7.274	-2.916	0.5000
6	349.3	588.3	330.6	335.7	112.8	483.1	908.0	881.2	861.2	520.8	-795.2	-398.1	24.02	27.03	-10.005	-6.167	0.7000
7	339.8	567.3	320.9	282.7	111.7	491.8	963.0	934.9	909.7	525.6	-851.3	-443.1	23.34	22.74	-10.685	-7.750	0.8500
8	331.0	557.3	312.6	264.8	108.7	490.3	980.4	952.9	926.0	533.0	-871.6	-462.6	22.72	21.30	-10.470	-7.963	0.9000
9	322.8	543.6	304.9	243.2	105.8	486.2	997.0	970.8	941.9	542.2	-891.2	-484.6	22.15	19.56	-9.958	-7.986	0.9500
	WCI/A1		WCI/A1						T02/T01	P02/P01	EFF-AD	EFF-P					
	LBM/SEC		KG/SEC								ROTOR	ROTOR					
	SQFT		SQM								%	%					
	23.87		116.48								1.0994	1.3331	86.16	86.72			

# AIRFOIL AERODYNAMIC SUMMARY PRINT

70 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 104 SPEED CODE 70 POINT NO 5

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	218.7	160.6	155.1	155.4	154.2	40.5	190.90	204.75	0.1383	0.1499
2	217.0	161.0	154.8	155.5	152.0	41.9	191.23	205.48	0.1278	0.1358
3	215.3	163.3	154.4	157.4	150.1	43.3	191.35	208.75	0.1169	0.1225
4	210.4	163.1	151.7	156.4	145.9	46.2	189.75	208.76	0.0826	0.0863
5	200.6	156.4	139.5	147.8	144.1	51.2	175.99	197.97	0.0381	0.0425
6	191.9	150.0	121.5	139.7	148.5	54.8	153.74	186.23	-0.0101	-0.0060
7	185.5	147.4	105.3	133.7	152.7	62.1	133.23	177.08	-0.0543	-0.0537
8	182.6	146.2	100.0	132.4	152.8	61.8	126.53	175.05	-0.0713	-0.0733
9	178.6	140.9	93.9	127.7	152.0	59.7	118.84	168.24	-0.0892	-0.0949

SL	B-1	B-2	M-1	M-2	INCS	INCM	DEV	TURN	D-FAC	OMEGA-B	LOSS-P	PO2/	PO/PO	TO/TO	XEFF-A	XEFF-P
	DEGREE	DEGREE			DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	STAGE	STAGE	TOT-STG	TOT-STG
1	44.7	14.6	0.6390	0.4608	-5.46	-2.80	22.72	30.15	0.4451	0.1009	0.0350	0.9757	1.3180	1.0943	87.07	87.57
2	44.4	15.0	0.6337	0.4622	-4.21	-1.23	20.95	29.36	0.4374	0.0893	0.0316	0.9788	1.3130	1.0937	86.44	86.96
3	44.1	15.4	0.6285	0.4688	-3.82	-0.55	19.54	28.76	0.4214	0.0637	0.0230	0.9851	1.3209	1.0935	88.53	88.98
4	43.8	16.5	0.6133	0.4683	-4.31	-0.19	16.73	27.39	0.4091	0.0409	0.0156	0.9908	1.3292	1.0931	91.09	91.44
5	45.9	19.1	0.5821	0.4484	-5.86	-0.82	14.51	26.82	0.4155	0.0321	0.0130	0.9934	1.3219	1.0939	88.44	88.90
6	50.7	21.4	0.5532	0.4277	-7.48	-1.66	13.29	29.30	0.4401	0.0416	0.0177	0.9921	1.3141	1.1015	80.02	80.78
7	55.4	24.9	0.5312	0.4180	-10.35	-4.09	17.16	30.50	0.4427	0.0390	0.0169	0.9931	1.3146	1.1120	72.61	73.65
8	56.8	25.0	0.5217	0.4137	-12.08	-5.70	18.07	31.77	0.4480	0.0384	0.0169	0.9934	1.3170	1.1152	71.05	72.15
9	58.3	25.0	0.5094	0.3981	-13.58	-7.10	19.15	33.23	0.4716	0.0537	0.0239	0.9912	1.3111	1.1175	68.49	69.67

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	PCT TE	EPSI-1	EPSI-2
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	SPAN	DEGREE	DEGREE
1	717.6	527.0	508.8	510.0	506.0	133.0	39.10	41.93	0.0550	7.926	8.591
2	711.9	528.4	507.8	510.2	498.9	137.4	39.17	42.08	0.1083	7.325	7.783
3	706.4	535.7	506.5	516.5	492.4	142.1	39.19	42.75	0.1610	6.700	7.020
4	690.4	535.0	497.6	513.1	478.5	151.7	38.86	42.76	0.3151	4.733	4.944
5	658.0	513.3	457.8	485.1	472.7	167.9	36.04	40.55	0.5165	2.182	2.437
6	629.7	492.2	398.7	458.2	487.4	179.7	31.49	38.14	0.7145	-0.580	-0.346
7	608.7	483.6	345.6	438.6	501.1	203.7	27.29	36.27	0.8603	-3.114	-3.079
8	599.1	479.5	328.1	434.6	501.2	202.7	25.91	35.85	0.9080	-4.085	-4.200
9	586.1	462.5	308.1	419.0	498.6	195.7	24.34	34.46	0.9548	-5.108	-5.436
	NCORR	NCORR	NCORR				TO/TO	PO2/PO1	PO/PO	EFF-AD	EFF-P
	INLET	INLET	INLET				STAGE		STAGE	STAGE	STAGE
	RPM	LBM/SEC	KG/SEC							%	%
	8531.60	61.91	28.08				1.0994	0.9898	1.3195	82.97	83.62



## AIRFOIL AERODYNAMIC SUMMARY PRINT

70 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 70 POINT NO 8

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2		
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN		
1	111.2	215.4	108.7	147.2	23.5	157.3	191.8	197.5	200.4	152.6	-168.3	-40.2	124.57	180.95	0.0371	0.0895		
2	117.7	212.0	115.0	146.1	25.1	153.6	199.2	203.0	208.6	154.3	-174.1	-49.4	131.96	180.74	0.0169	0.0728		
3	118.7	208.4	115.9	145.2	25.9	149.5	206.3	208.4	214.4	156.7	-180.4	-58.9	132.96	180.52	-0.0012	0.0573		
4	119.9	200.2	116.1	141.0	30.1	142.1	226.9	224.8	228.5	163.4	-196.9	-82.7	133.11	177.41	-0.0512	0.0123		
5	120.1	188.8	114.6	130.3	35.9	136.6	252.7	246.7	245.2	170.5	-216.8	-110.0	131.50	165.53	-0.1093	-0.0451		
6	118.2	177.8	111.6	119.0	38.9	132.2	276.7	268.5	262.7	181.0	-237.8	-136.3	128.37	151.99	-0.1554	-0.0988		
7	115.4	168.1	108.8	103.8	38.5	132.3	293.4	284.9	277.2	184.5	-255.0	-152.6	125.28	132.20	-0.1774	-0.1310		
8	112.7	163.0	106.3	95.3	37.6	132.3	298.7	290.4	282.0	184.6	-261.2	-158.1	122.31	121.12	-0.1790	-0.1371		
9	110.3	155.8	104.0	83.9	36.7	131.2	303.8	295.8	286.6	184.7	-267.1	-164.6	119.60	106.41	-0.1738	-0.1390		
SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PO2/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	12.2	46.9	57.08	15.31	0.3304	0.6293	0.5952	0.4458	-0.14	6.13	12.79	41.77	0.4445	0.0587	0.0171	1.3425	95.76	95.93
2	12.3	46.5	56.53	18.70	0.3499	0.6190	0.6204	0.4504	1.15	7.27	11.25	37.82	0.4534	0.0759	0.0222	1.3303	94.01	94.25
3	12.6	45.9	57.27	22.11	0.3532	0.6082	0.6378	0.4573	2.52	8.50	11.29	35.16	0.4519	0.0678	0.0197	1.3262	94.30	94.53
4	14.5	45.2	59.50	30.38	0.3568	0.5832	0.6800	0.4761	4.65	10.32	10.34	29.11	0.4469	0.0480	0.0137	1.3201	95.34	95.53
5	17.4	46.3	62.18	40.10	0.3573	0.5484	0.7296	0.4954	5.22	10.10	8.94	22.09	0.4476	0.0598	0.0161	1.3049	93.25	93.50
6	19.3	47.9	64.90	48.76	0.3516	0.5148	0.7813	0.5238	5.59	9.84	7.70	16.15	0.4419	0.0885	0.0217	1.2907	88.77	89.17
7	19.5	51.8	66.94	55.67	0.3431	0.4839	0.8242	0.5312	5.50	9.00	8.12	11.27	0.4633	0.1552	0.0338	1.2788	79.79	80.48
8	19.5	54.1	67.91	58.82	0.3350	0.4680	0.8378	0.5300	5.61	8.85	9.41	9.09	0.4743	0.1831	0.0370	1.2735	76.15	76.95
9	19.5	57.3	68.76	62.91	0.3275	0.4460	0.8511	0.5290	5.29	8.27	11.87	5.86	0.4831	0.2114	0.0380	1.2631	72.24	73.14
SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE	
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN	
1	365.0	706.7	356.7	482.9	77.1	516.0	629.3	648.0	657.4	500.6	-552.2	-132.1	25.51	37.06	2.128	5.126	0.0500	
2	386.1	695.5	377.2	479.4	82.3	503.9	653.4	666.0	684.5	506.1	-571.1	-162.1	27.03	37.02	0.969	4.170	0.1000	
3	389.6	683.8	380.2	476.4	85.0	490.5	676.9	683.9	703.5	514.1	-591.9	-193.3	27.23	36.97	-0.064	3.281	0.1499	
4	393.4	656.8	380.8	462.5	98.6	466.4	744.6	737.7	749.8	536.2	-645.9	-271.3	27.26	36.33	-2.934	0.702	0.3000	
5	394.0	619.4	375.9	427.4	117.9	448.3	829.1	809.3	804.5	559.5	-711.2	-361.0	26.93	33.90	-6.263	-2.587	0.5000	
6	387.9	583.5	366.3	390.4	127.7	433.7	907.9	881.0	861.9	593.7	-780.2	-447.4	26.29	31.13	-8.905	-5.662	0.7000	
7	378.7	551.6	357.1	340.4	126.2	434.0	962.8	934.8	909.6	605.5	-836.6	-500.7	25.66	27.08	-10.165	-7.506	0.8500	
8	369.9	534.8	348.8	312.6	123.3	434.0	980.2	952.7	925.2	605.7	-856.9	-518.8	25.05	24.81	-10.255	-7.855	0.9000	
9	361.9	511.1	341.2	275.3	120.5	430.6	996.8	970.6	940.4	606.2	-876.3	-540.0	24.50	21.79	-9.958	-7.965	0.9500	
	WC1/A1		WC1/A1						T02/T01	P02/P01	EFF-AD	EFF-P						
	LBM/SEC		KG/SEC								ROTOR	ROTOR						
	SQFT		SQM								%	%						
	26.07		127.24						1.0880	1.3044	89.68	90.06						

# AIRFOIL AERODYNAMIC SUMMARY PRINT

70 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 104 SPEED CODE 70 POINT NO 8

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	226.1	189.1	166.9	184.6	152.5	41.2	201.13	230.48	0.1356	0.1478
2	224.1	189.9	167.0	184.7	149.5	44.2	201.96	231.73	0.1224	0.1315
3	221.8	191.6	166.9	185.9	146.0	46.4	202.45	234.38	0.1090	0.1160
4	215.7	188.1	163.9	181.2	140.3	50.4	200.63	229.98	0.0685	0.0742
5	205.1	180.4	153.0	170.3	136.6	59.7	189.21	216.95	0.0175	0.0244
6	193.7	171.5	140.2	158.5	133.6	65.5	174.74	201.97	-0.0299	-0.0247
7	183.6	164.1	124.7	149.2	134.8	68.4	155.28	188.98	-0.0651	-0.0653
8	178.7	160.7	116.8	145.4	135.2	68.4	145.23	183.55	-0.0780	-0.0810
9	171.8	153.0	106.7	137.2	134.6	67.7	132.47	172.54	-0.0922	-0.0985

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	XEFF-A TOT-STG	XEFF-P TOT-STG
1	42.3	12.6	0.6632	0.5476	-7.91	-5.24	20.70	29.73	0.3331	0.1131	0.0396	0.9711	1.3025	1.0916	85.67	86.19
2	41.7	13.4	0.6574	0.5505	-6.90	-3.92	19.33	28.28	0.3174	0.0907	0.0323	0.9772	1.2993	1.0902	86.15	86.66
3	41.1	14.0	0.6503	0.5560	-6.85	-3.58	18.15	27.12	0.2977	0.0572	0.0208	0.9859	1.3070	1.0890	89.41	89.81
4	40.5	15.5	0.6320	0.5457	-7.65	-3.54	15.80	24.97	0.2889	0.0461	0.0176	0.9892	1.3051	1.0865	91.42	91.74
5	41.7	19.3	0.5991	0.5228	-10.05	-5.00	14.74	22.40	0.2779	0.0455	0.0183	0.9902	1.2916	1.0848	89.54	89.92
6	43.6	22.5	0.5635	0.4956	-14.56	-8.74	14.34	21.17	0.2761	0.0618	0.0261	0.9880	1.2753	1.0852	84.46	84.99
7	47.2	24.6	0.5309	0.4720	-18.50	-12.23	16.90	22.61	0.2836	0.0699	0.0304	0.9877	1.2635	1.0910	76.01	76.80
8	49.2	25.2	0.5152	0.4609	-19.68	-13.30	18.27	23.98	0.2892	0.0679	0.0299	0.9887	1.2603	1.0938	72.91	73.78
9	51.6	26.3	0.4939	0.4379	-20.28	-13.80	20.39	25.30	0.3067	0.0806	0.0356	0.9876	1.2478	1.0956	68.37	69.35

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	741.8	620.4	547.7	605.5	500.3	135.3	41.19	47.20	0.0550	7.770	8.466
2	735.4	623.1	548.0	606.0	490.4	145.1	41.36	47.46	0.1083	7.013	7.533
3	727.6	628.6	547.6	609.9	479.2	152.1	41.46	48.00	0.1610	6.246	6.649
4	707.9	617.0	537.7	594.4	460.3	165.5	41.09	47.10	0.3151	3.922	4.253
5	672.9	592.0	502.1	558.6	448.0	196.0	38.75	44.43	0.5165	1.003	1.395
6	635.5	562.8	460.1	520.1	438.4	214.9	35.79	41.36	0.7145	-1.711	-1.418
7	602.5	538.5	409.0	489.5	442.4	224.4	31.60	38.70	0.8603	-3.727	-3.744
8	586.2	527.1	383.2	477.0	443.6	224.4	29.74	37.59	0.9080	-4.469	-4.643
9	563.6	502.1	350.2	450.3	441.6	222.3	27.13	35.34	0.9548	-5.283	-5.645
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1	PO/PO STAGE	EFF-AD STAGE	EFF-P STAGE
	8530.20	67.63	30.67				1.0880	0.9867	1.2871	85.01	85.54

## AIRFOIL AERODYNAMIC SUMMARY PRINT

70 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 106 SPEED CODE 70 POINT NO 1

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2		
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN		
1	112.6	216.6	111.4	152.1	16.5	154.3	191.8	197.5	207.6	158.1	-175.2	-43.2	127.08	188.47	0.0367	0.0883		
2	119.2	213.7	117.9	151.0	17.7	151.2	199.1	202.9	216.4	159.6	-181.4	-51.7	134.73	188.12	0.0160	0.0706		
3	121.2	210.5	119.8	150.4	18.6	147.3	206.3	208.4	222.6	162.3	-187.7	-61.1	136.91	188.27	-0.0025	0.0542		
4	123.6	200.3	121.5	145.3	22.6	137.8	226.9	224.8	237.7	169.4	-204.3	-87.0	138.83	183.85	-0.0526	0.0080		
5	124.0	187.1	120.8	134.7	28.0	129.9	252.6	246.6	255.1	178.3	-224.6	-116.8	138.04	171.67	-0.1091	-0.0488		
6	122.5	175.6	118.6	124.8	30.9	123.5	276.6	268.5	272.8	191.2	-245.7	-144.9	135.68	159.63	-0.1531	-0.1002		
7	119.9	166.1	115.9	112.3	30.9	122.4	293.4	284.8	287.0	197.5	-262.5	-162.4	132.74	143.24	-0.1756	-0.1316		
8	117.2	159.8	113.2	103.1	30.2	122.0	298.7	290.3	291.4	197.4	-268.5	-168.3	129.63	131.18	-0.1786	-0.1380		
9	114.7	149.4	110.9	88.3	29.6	120.5	303.7	295.8	295.7	196.3	-274.2	-175.3	126.85	111.93	-0.1747	-0.1399		
SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PO2/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE	TOTAL	TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	8.4	45.4	57.50	15.86	0.3345	0.6324	0.6168	0.4615	0.28	6.56	13.34	41.64	0.4434	0.0262	0.0076	1.3624	98.03	98.12
2	8.5	45.1	56.96	18.92	0.3545	0.6234	0.6437	0.4655	1.58	7.71	11.46	38.05	0.4559	0.0542	0.0158	1.3505	95.60	95.78
3	8.8	44.4	57.44	22.13	0.3608	0.6137	0.6626	0.4732	2.69	8.67	11.31	35.31	0.4546	0.0520	0.0151	1.3454	95.50	95.69
4	10.5	43.5	59.28	30.90	0.3681	0.5828	0.7078	0.4930	4.42	10.10	10.85	28.38	0.4479	0.0475	0.0135	1.3291	95.19	95.38
5	13.1	43.9	61.77	40.82	0.3693	0.5431	0.7596	0.5174	4.81	9.69	9.67	20.95	0.4407	0.0641	0.0171	1.3063	92.38	92.66
6	14.6	44.6	64.29	49.13	0.3647	0.5081	0.8122	0.5533	4.98	9.23	8.08	15.16	0.4243	0.0865	0.0211	1.2879	88.34	88.75
7	15.0	47.3	66.23	55.23	0.3568	0.4783	0.8538	0.5686	4.79	8.29	7.68	11.00	0.4336	0.1388	0.0305	1.2749	80.60	81.26
8	15.0	49.7	67.18	58.39	0.3485	0.4589	0.8665	0.5669	4.88	8.12	8.98	8.79	0.4438	0.1667	0.0341	1.2668	76.61	77.38
9	15.0	53.7	68.02	63.17	0.3410	0.4278	0.8790	0.5620	4.55	7.54	12.14	4.85	0.4557	0.2014	0.0359	1.2493	71.33	72.22
SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE	
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN	
1	369.4	710.8	365.3	499.0	54.3	506.2	629.2	647.9	681.2	518.7	-574.2	-141.7	26.03	38.60	2.102	5.061	0.0500	
2	391.0	701.2	386.7	495.4	58.0	496.2	653.3	665.8	709.9	523.7	-595.3	-169.6	27.59	38.53	0.915	4.045	0.1000	
3	397.7	690.7	393.0	493.5	61.0	483.3	676.8	683.7	730.5	532.6	-615.8	-200.5	28.04	38.56	-0.140	3.106	0.1499	
4	405.6	657.1	398.7	476.9	74.2	452.0	744.4	737.5	779.9	555.8	-670.2	-285.5	28.43	37.65	-3.015	0.460	0.3000	
5	406.8	614.0	396.3	442.1	91.9	426.1	828.9	809.2	836.3	585.0	-737.0	-383.1	28.27	35.16	-6.252	-2.796	0.5000	
6	402.0	576.2	389.0	409.4	101.4	405.4	907.7	880.8	895.2	627.5	-806.2	-475.5	27.79	32.69	-8.771	-5.739	0.7000	
7	393.5	545.0	380.2	368.4	101.3	401.6	962.6	934.6	941.5	647.9	-861.3	-533.0	27.19	29.34	-10.059	-7.538	0.8500	
8	384.5	524.2	371.5	338.4	99.1	400.4	980.0	952.5	956.0	647.6	-880.9	-552.1	26.55	26.87	-10.236	-7.909	0.9000	
9	376.5	490.2	363.8	289.9	97.0	395.3	996.6	970.4	970.3	644.0	-899.6	-575.1	25.98	22.92	-10.011	-8.016	0.9500	
	WC1/A1	WC1/A1							TO2/TO1	PO2/PO1	EFF-AD	EFF-P						
	LBM/SEC	KG/SEC									ROTOR	ROTOR						
	SQFT	SQM									%	%						
	27.31	133.27							1.0888	1.3083	89.90	90.28						

# AIRFOIL AERODYNAMIC SUMMARY PRINT

70 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 106 SPEED CODE 70 POINT NO 1

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	229.6	207.1	174.2	200.9	149.6	50.4	210.56	244.56	0.1348	0.1476
2	228.1	208.4	174.3	201.5	147.2	53.4	211.30	246.44	0.1208	0.1312
3	226.1	210.2	174.4	202.6	143.9	56.0	212.07	249.14	0.1066	0.1155
4	218.0	204.4	170.4	195.4	136.0	60.1	208.74	242.02	0.0641	0.0729
5	205.3	194.5	159.1	182.4	129.8	67.7	196.58	226.65	0.0114	0.0215
6	192.9	184.4	146.9	169.2	125.0	73.3	182.95	210.21	-0.0360	-0.0284
7	182.7	175.5	133.4	158.2	124.8	76.1	166.09	195.56	-0.0686	-0.0678
8	176.5	170.3	124.9	153.1	124.8	74.4	155.18	188.66	-0.0799	-0.0824
9	166.8	161.1	112.1	144.8	123.6	70.5	138.82	177.60	-0.0928	-0.0989

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	%EFF-A TOT-STG	%EFF-P TOT-STG
1	40.6	14.0	0.6736	0.6027	-9.66	-6.99	22.18	26.51	0.2458	0.1318	0.0458	0.9655	1.3140	1.0942	86.15	86.67
2	40.1	14.8	0.6691	0.6069	-8.55	-5.57	20.71	25.26	0.2295	0.1055	0.0374	0.9727	1.3127	1.0936	86.40	86.91
3	39.4	15.4	0.6629	0.6127	-8.53	-5.26	19.59	24.00	0.2082	0.0692	0.0250	0.9824	1.3204	1.0924	89.53	89.94
4	38.5	17.1	0.6383	0.5958	-9.63	-5.52	17.33	21.46	0.1939	0.0533	0.0202	0.9873	1.3104	1.0887	90.59	90.94
5	39.2	20.4	0.5994	0.5660	-12.58	-7.53	15.78	18.83	0.1776	0.0555	0.0222	0.9881	1.2893	1.0858	87.82	88.25
6	40.4	23.4	0.5611	0.5348	-17.79	-11.97	15.31	16.97	0.1668	0.0783	0.0328	0.9850	1.2680	1.0851	82.55	83.13
7	43.1	25.7	0.5285	0.5068	-22.64	-16.38	17.96	17.41	0.1706	0.1042	0.0449	0.9819	1.2520	1.0892	74.42	75.21
8	45.0	25.9	0.5094	0.4904	-23.89	-17.51	19.00	19.04	0.1809	0.1140	0.0498	0.9814	1.2443	1.0912	70.66	71.55
9	47.8	26.0	0.4798	0.4625	-24.07	-17.59	20.07	21.83	0.1976	0.1231	0.0545	0.9820	1.2273	1.0921	65.49	66.47

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	753.3	679.6	571.4	659.2	490.8	165.3	43.12	50.09	0.0550	7.724	8.458
2	748.5	683.9	571.9	661.1	482.9	175.2	43.28	50.47	0.1083	6.921	7.515
3	741.8	689.6	572.3	664.7	472.0	183.6	43.43	51.03	0.1610	6.107	6.618
4	715.2	670.7	558.9	641.1	446.1	197.1	42.75	49.57	0.3151	3.675	4.174
5	673.6	638.3	521.9	598.4	425.9	222.2	40.26	46.42	0.5165	0.654	1.231
6	632.9	604.9	482.1	555.1	410.0	240.4	37.47	43.05	0.7145	-2.064	-1.628
7	599.3	575.9	437.6	519.0	409.5	249.6	34.02	40.05	0.8603	-3.932	-3.883
8	579.2	558.7	409.8	502.5	409.3	244.2	31.78	38.64	0.9080	-4.580	-4.720
9	547.4	528.4	367.7	475.2	405.4	231.3	28.43	36.37	0.9548	-5.315	-5.666
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1	PO/PO STAGE	EFF-AD STAGE %	EFF-P STAGE %
	8528.20	70.84	32.13				1.0688	0.9832	1.2863	84.03	84.59

## AIRFOIL AERODYNAMIC SUMMARY PRINT

70 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 106 SPEED CODE 70 POINT NO 2

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	U-1 M/SEC	U-2 M/SEC	V'-1 M/SEC	V'-2 M/SEC	VO'-1 M/SEC	VO'-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	103.3	212.4	102.2	142.6	15.0	157.5	191.8	197.5	204.2	148.1	-176.8	-40.0	117.91	178.97	0.0358	0.0882
2	110.0	209.6	108.8	141.9	16.1	154.2	199.1	202.9	212.9	150.0	-183.0	-48.7	125.76	179.08	0.0142	0.0705
3	111.9	206.8	110.6	141.3	16.9	151.0	206.3	208.4	219.3	152.5	-189.4	-57.4	127.82	179.23	-0.0050	0.0541
4	113.7	198.6	111.9	137.0	20.3	143.8	226.9	224.8	234.9	159.2	-206.6	-81.0	129.19	175.69	-0.0581	0.0072
5	113.7	187.1	110.8	126.8	25.2	137.6	252.7	246.6	253.0	167.3	-227.4	-109.1	128.08	163.88	-0.1205	-0.0528
6	111.8	175.3	108.3	111.0	28.1	135.6	276.7	268.5	271.1	173.2	-248.5	-132.9	125.31	143.69	-0.1687	-0.1080
7	109.2	166.3	105.6	93.6	27.9	137.4	293.4	284.9	285.7	174.6	-265.5	-147.4	122.34	120.65	-0.1847	-0.1358
8	106.5	162.8	102.9	87.5	27.2	137.3	298.7	290.3	290.4	176.3	-271.5	-153.0	119.20	112.71	-0.1823	-0.1396
9	104.0	157.9	100.6	79.7	26.5	136.3	303.7	295.8	294.9	178.2	-277.2	-159.5	116.43	102.48	-0.1743	-0.1399

SL	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	M-1	M-2	M'-1	M'-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D FAC	OMEGA-B TOTAL	LOSS-P TOTAL	P02/ P01	XEFF-A TOTAL	XEFF-P TOTAL
1	8.3	47.9	59.91	15.69	0.3063	0.6183	0.6057	0.4311	2.69	8.97	13.17	44.23	0.4902	0.0507	0.0147	1.3691	96.41	96.57
2	8.4	47.4	59.24	18.97	0.3266	0.6095	0.6323	0.4363	3.86	9.98	11.51	40.27	0.4991	0.0719	0.0210	1.3589	94.47	94.71
3	8.7	46.9	59.71	22.12	0.3324	0.6010	0.6515	0.4433	4.95	10.93	11.30	37.59	0.4993	0.0700	0.0204	1.3563	94.29	94.54
4	10.3	46.4	61.60	30.58	0.3378	0.5759	0.6982	0.4616	6.75	12.42	10.53	31.02	0.4972	0.0664	0.0190	1.3493	93.78	94.03
5	12.9	47.2	64.09	40.61	0.3378	0.5407	0.7519	0.4833	7.12	12.00	9.46	23.47	0.4954	0.0858	0.0230	1.3338	90.69	91.07
6	14.6	50.6	66.56	50.00	0.3322	0.5038	0.8053	0.4977	7.25	11.50	8.95	16.56	0.5091	0.1451	0.0347	1.3164	82.85	83.51
7	14.9	55.6	68.39	57.50	0.3243	0.4748	0.8483	0.4987	6.95	10.45	9.94	10.90	0.5356	0.2158	0.0447	1.3070	74.29	75.25
8	14.8	57.4	69.30	60.14	0.3159	0.4640	0.8616	0.5023	7.00	10.24	10.72	9.16	0.5391	0.2329	0.0453	1.3060	72.27	73.30
9	14.8	59.6	70.09	63.38	0.3086	0.4490	0.8747	0.5068	6.62	9.60	12.34	6.71	0.5402	0.2498	0.0442	1.3011	70.11	71.19

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	EPSI-1 DEGREE	EPSI-2 DEGREE	PCT TE SPAN
1	338.8	697.0	335.3	467.9	49.1	516.6	629.2	647.9	670.0	486.0	-580.1	-131.3	24.15	36.66	2.049	5.054	0.0500
2	360.9	687.6	357.0	465.5	52.8	506.0	653.3	665.9	698.6	492.2	-600.5	-159.8	25.76	36.68	0.815	4.039	0.1000
3	367.1	678.6	362.9	463.7	55.4	495.5	676.8	683.8	719.6	500.5	-621.4	-188.3	26.18	36.71	-0.286	3.101	0.1499
4	373.0	651.7	367.0	449.6	66.6	471.7	744.4	737.5	770.8	522.3	-677.9	-265.8	26.46	35.98	-3.326	0.415	0.3000
5	373.0	613.9	363.7	416.1	82.7	451.4	829.0	809.2	830.1	548.8	-746.2	-357.8	26.23	33.56	-6.903	-3.028	0.5000
6	367.0	575.1	355.2	364.3	92.2	445.0	907.7	880.9	889.5	568.1	-815.5	-435.9	25.66	29.43	-9.664	-6.185	0.7000
7	358.3	545.5	346.4	307.1	91.5	450.9	962.6	934.6	937.5	573.0	-871.1	-483.8	25.06	24.71	-10.583	-7.783	0.8500
8	349.3	534.2	337.7	287.2	89.2	450.5	980.0	952.5	952.7	578.4	-890.8	-502.1	24.41	23.08	-10.447	-7.999	0.9000
9	341.4	518.0	330.1	261.3	87.1	447.3	996.6	970.4	967.6	584.8	-909.6	-523.2	23.85	20.99	-9.984	-8.014	0.9500

WC1/A1 WC1/A1  
LBM/SEC KG/SEC  
SQFT SQM  
25.29 123.40

T02/T01 P02/P01 EFF-AD EFF-P  
ROTOR ROTOR  
% %  
1.0987 1.3338 86.95 87.47

# AIRFOIL AERODYNAMIC SUMMARY PRINT

70 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 106 SPEED CODE 70 POINT NO 2

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	222.3	177.9	161.6	173.1	152.7	41.2	199.09	223.39	0.1360	0.1484
2	220.8	179.1	161.9	173.7	150.1	43.6	200.16	225.00	0.1234	0.1329
3	219.1	181.4	162.0	175.4	147.5	46.3	200.93	228.19	0.1105	0.1182
4	212.8	178.9	158.6	171.0	141.9	52.5	198.37	223.88	0.0716	0.0784
5	201.7	170.7	147.7	160.5	137.5	58.0	186.30	210.74	0.0234	0.0313
6	189.4	161.5	130.7	148.8	137.0	62.9	165.54	194.83	-0.0230	-0.0170
7	180.0	155.4	113.0	139.1	140.1	69.2	142.87	180.91	-0.0613	-0.0607
8	176.5	153.0	107.0	136.5	140.4	69.0	135.23	177.05	-0.0759	-0.0782
9	171.8	147.0	99.8	130.8	139.8	67.0	126.02	169.14	-0.0913	-0.0973

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	XEFF-A TOT-STG	XEFF-P TOT-STG
1	43.3	13.4	0.6492	0.5120	-6.94	-4.27	21.49	29.91	0.3726	0.1134	0.0396	0.9720	1.3300	1.0974	87.18	87.69
2	42.7	14.1	0.6446	0.5156	-5.88	-2.90	19.98	28.66	0.3590	0.0950	0.0337	0.9769	1.3271	1.0969	86.94	87.45
3	42.2	14.8	0.6395	0.5228	-5.71	-2.44	18.95	27.46	0.3386	0.0643	0.0233	0.9845	1.3351	1.0965	89.25	89.68
4	41.8	17.0	0.6201	0.5155	-6.39	-2.28	17.31	24.72	0.3217	0.0433	0.0164	0.9901	1.3356	1.0953	90.48	90.87
5	42.9	19.9	0.5858	0.4908	-8.84	-3.79	15.27	23.09	0.3209	0.0418	0.0168	0.9913	1.3223	1.0946	87.88	88.35
6	46.4	22.9	0.5466	0.4627	-11.83	-6.01	14.81	23.43	0.3271	0.0442	0.0186	0.9918	1.3064	1.0982	80.91	81.62
7	51.1	26.4	0.5159	0.4425	-14.64	-8.38	18.71	24.66	0.3292	0.0392	0.0168	0.9934	1.2963	1.1064	72.80	73.78
8	52.7	26.8	0.5049	0.4348	-16.18	-9.80	19.89	25.85	0.3365	0.0421	0.0183	0.9932	1.2980	1.1094	70.75	71.81
9	54.5	27.1	0.4902	0.4169	-17.38	-10.90	21.23	27.36	0.3592	0.0588	0.0258	0.9911	1.2898	1.1114	67.71	68.85

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	729.3	583.7	530.0	567.8	500.9	135.1	40.78	45.75	0.0550	7.795	8.505
2	724.3	587.5	531.1	569.8	492.5	143.2	40.99	46.08	0.1083	7.068	7.614
3	718.8	595.2	531.5	575.4	484.0	152.1	41.15	46.73	0.1610	6.330	6.772
4	698.2	586.9	520.4	561.1	465.6	172.2	40.63	45.85	0.3151	4.101	4.494
5	661.9	559.9	484.4	525.6	451.0	190.2	38.16	43.16	0.5165	1.340	1.794
6	621.3	530.0	428.8	488.1	449.6	206.5	33.90	39.90	0.7145	-1.317	-0.974
7	590.5	509.8	370.7	456.4	459.6	227.0	29.26	37.05	0.8603	-3.515	-3.480
8	579.2	501.8	351.1	447.9	460.6	226.4	27.70	36.26	0.9080	-4.346	-4.479
9	563.6	482.3	327.4	429.3	458.8	219.8	25.81	34.64	0.9548	-5.233	-5.573
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1	PO/PO STAGE	EFF-AD STAGE	EFF-P STAGE
	8528.60	65.59	29.74				1.0987	0.9887	1.3187	83.38	84.01

## AIRFOIL AERODYNAMIC SUMMARY PRINT

70 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 106 SPEED CODE 70 PQINT NO 3

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2		
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN		
1	100.6	211.7	99.6	140.6	14.7	158.3	191.8	197.5	203.2	145.9	-177.1	-39.2	115.26	176.88	0.0350	0.0879		
2	107.4	208.7	106.2	139.8	15.8	155.0	199.1	203.0	211.9	147.8	-183.4	-48.0	123.14	176.98	0.0129	0.0700		
3	109.1	206.0	107.8	139.3	16.5	151.9	206.3	208.4	218.3	150.3	-189.8	-56.6	125.01	177.08	-0.0069	0.0536		
4	110.5	198.3	108.7	134.7	19.6	145.5	226.9	224.8	234.1	156.4	-207.3	-79.3	125.97	173.16	-0.0621	0.0059		
5	110.3	187.3	107.6	123.8	24.5	140.6	252.7	246.6	252.3	163.0	-228.2	-106.0	124.74	160.24	-0.1271	-0.0560		
6	108.4	176.2	104.9	105.6	27.3	141.0	276.7	268.5	270.5	165.6	-249.4	-127.5	121.84	136.82	-0.1748	-0.1116		
7	105.7	168.5	102.1	89.4	27.0	142.9	293.4	284.9	285.3	167.8	-266.4	-142.0	118.75	115.51	-0.1865	-0.1375		
8	102.9	165.4	99.5	84.0	26.3	142.6	298.7	290.3	290.0	170.0	-272.4	-147.8	115.60	108.43	-0.1828	-0.1405		
9	100.5	161.0	97.1	77.0	25.7	141.4	303.8	295.8	294.6	172.5	-278.1	-154.4	112.80	99.38	-0.1740	-0.1402		
SL	B-1	B-2	B'-1	B'-2	N-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	P02/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE	TOTAL	TOTAL	TOTAL	P01	TOTAL	TOTAL
1	8.4	48.4	60.60	15.58	0.2983	0.6158	0.6023	0.4244	3.38	9.65	13.06	45.02	0.5006	0.0587	0.0171	1.3703	95.90	96.08
2	8.4	48.0	59.89	18.95	0.3186	0.6067	0.6289	0.4297	4.51	10.64	11.50	40.94	0.5088	0.0780	0.0227	1.3602	94.09	94.34
3	8.7	47.5	60.39	22.12	0.3238	0.5983	0.6481	0.4365	5.64	11.62	11.30	38.27	0.5094	0.0759	0.0221	1.3582	93.90	94.16
4	10.2	47.2	62.37	30.47	0.3280	0.5745	0.6952	0.4529	7.51	13.19	10.42	31.90	0.5115	0.0755	0.0216	1.3534	93.05	93.34
5	12.9	48.6	64.84	40.51	0.3277	0.5406	0.7491	0.4703	7.87	12.76	9.36	24.33	0.5168	0.1015	0.0272	1.3398	89.28	89.72
6	14.7	53.1	67.30	50.26	0.3217	0.5051	0.8031	0.4748	7.99	12.24	9.21	17.04	0.5448	0.1750	0.0417	1.3251	80.27	81.04
7	14.9	57.9	69.11	57.71	0.3135	0.4802	0.8465	0.4780	7.66	11.16	10.16	11.39	0.5674	0.2381	0.0491	1.3207	73.03	74.06
8	14.9	59.4	70.00	60.31	0.3052	0.4704	0.8600	0.4833	7.70	10.94	10.90	9.69	0.5684	0.2522	0.0487	1.3208	71.41	72.52
9	14.8	61.4	70.78	63.43	0.2978	0.4569	0.8732	0.4895	7.31	10.29	12.39	7.36	0.5671	0.2658	0.0469	1.3172	69.68	70.84
SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE	
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN	
1	330.2	694.7	326.7	461.2	48.1	519.5	629.2	648.0	665.7	478.8	-581.2	-128.5	23.61	36.23	2.006	5.036	0.0500	
2	352.2	684.9	348.4	458.8	51.8	508.5	653.4	665.9	695.2	485.1	-601.6	-157.4	25.22	36.25	0.738	4.013	0.1000	
3	357.8	676.0	353.7	456.9	54.1	498.2	676.8	683.8	716.2	493.1	-622.8	-185.6	25.60	36.27	-0.395	3.070	0.1499	
4	362.4	650.7	356.7	442.1	64.2	477.4	744.5	737.6	768.1	513.0	-680.3	-260.2	25.80	35.46	-3.556	0.335	0.3000	
5	362.0	614.6	353.0	406.0	80.4	461.4	829.0	809.3	827.7	534.7	-748.6	-347.8	25.55	32.82	-7.280	-3.209	0.5000	
6	355.6	578.0	344.2	346.6	89.5	462.5	907.8	880.9	887.7	543.3	-818.2	-418.4	24.95	28.02	-10.015	-6.393	0.7000	
7	346.7	553.0	335.1	293.3	88.7	468.8	962.7	934.7	936.0	550.5	-874.0	-465.9	24.32	23.66	-10.687	-7.876	0.9500	
8	337.7	542.8	326.4	275.5	86.4	467.7	980.1	952.6	951.5	557.7	-893.7	-484.9	23.68	22.21	-10.475	-8.052	0.9000	
9	329.6	528.2	318.7	252.5	84.2	464.0	996.7	970.5	966.6	566.0	-912.5	-506.6	23.10	20.35	-9.968	-8.035	0.9500	
	WCL/A1	WCL/A1							T02/T01	P02/P01	EFF-AD	EFF-P						
	LBM/SEC	KG/SEC									ROTOR	ROTOR						
	SQFT	SQM									%	%						
	24.62	120.12							1.1020	1.3409	85.76	86.33						

# AIRFOIL AERODYNAMIC SUMMARY PRINT

70 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 106 SPEED CODE 70 POINT NO 3

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	220.6	169.6	158.4	164.8	153.5	40.1	196.16	215.67	0.1369	0.1492
2	219.0	170.6	158.7	165.2	150.8	42.7	197.17	216.90	0.1251	0.1345
3	217.3	173.0	158.8	167.0	148.3	45.2	197.88	220.23	0.1131	0.1207
4	211.4	171.8	155.2	164.5	143.6	49.5	194.39	218.16	0.0761	0.0830
5	200.9	164.0	143.7	154.2	140.5	55.9	181.94	204.99	0.0295	0.0377
6	189.4	155.3	124.8	142.8	142.4	61.1	158.49	189.11	-0.0171	-0.0107
7	181.5	150.7	108.3	135.4	145.7	66.2	137.42	178.07	-0.0583	-0.0571
8	178.4	148.9	102.9	132.9	145.8	67.0	130.53	174.48	-0.0740	-0.0757
9	174.2	143.9	96.5	128.0	145.0	65.8	122.41	167.53	-0.0904	-0.0960

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	XEFF-A TOT-STG	XEFF-P TOT-STG
1	44.0	13.7	0.6437	0.4868	-6.22	-3.55	21.79	30.33	0.4086	0.1130	0.0393	0.9725	1.3321	1.0982	86.96	87.48
2	43.4	14.5	0.6387	0.4899	-5.17	-2.19	20.36	28.99	0.3954	0.0964	0.0342	0.9768	1.3286	1.0977	86.62	87.14
3	43.0	15.1	0.6335	0.4973	-4.98	-1.79	19.30	27.85	0.3752	0.0669	0.0241	0.9842	1.3367	1.0974	88.79	89.24
4	42.7	16.7	0.6153	0.4935	-5.43	-1.32	16.99	25.99	0.3604	0.0406	0.0154	0.9908	1.3410	1.0971	90.10	90.50
5	44.4	19.9	0.5824	0.4701	-7.43	-2.38	15.34	24.42	0.3624	0.0389	0.0156	0.9920	1.3298	1.0975	87.07	87.58
6	48.8	23.2	0.5452	0.4431	-9.42	-3.60	15.04	25.60	0.3768	0.0412	0.0173	0.9924	1.3159	1.1034	78.99	79.79
7	53.3	26.1	0.5191	0.4276	-12.40	-6.13	18.32	27.29	0.3830	0.0372	0.0160	0.9937	1.3119	1.1125	71.72	72.79
8	54.8	26.7	0.5092	0.4216	-14.09	-7.71	19.80	28.03	0.3869	0.0392	0.0170	0.9936	1.3131	1.1155	70.08	71.22
9	56.3	27.2	0.4961	0.4067	-15.51	-9.03	21.30	29.16	0.4043	0.0496	0.0217	0.9923	1.3074	1.1175	67.73	68.93

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	723.8	556.5	519.9	540.7	503.7	131.7	40.18	44.17	0.0550	7.844	8.551
2	718.4	559.7	520.7	541.9	494.9	140.0	40.38	44.42	0.1083	7.168	7.707
3	712.9	567.8	521.0	548.0	486.7	148.3	40.53	45.10	0.1610	6.479	6.914
4	693.8	563.5	509.3	539.7	471.1	162.3	39.94	44.68	0.3151	4.360	4.756
5	659.2	538.1	471.3	505.8	460.9	183.4	37.26	41.98	0.5165	1.692	2.163
6	621.4	509.7	409.6	468.6	467.3	200.5	32.46	38.73	0.7145	-0.981	-0.612
7	595.6	494.5	355.5	444.2	477.9	217.3	28.15	36.47	0.8603	-3.342	-3.269
8	585.5	488.4	337.7	436.2	478.3	219.7	26.73	35.74	0.9080	-4.237	-4.338
9	571.6	472.2	316.7	420.0	475.9	215.8	25.07	34.31	0.9548	-5.181	-5.503
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1 STAGE	PO/PO STAGE	EFF-AD STAGE %	EFF-P STAGE %
	8529.20	63.85	28.96				1.1020	0.9892	1.3265	82.45	83.14



## AIRFOIL AERODYNAMIC SUMMARY PRINT

70 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 106 SPEED CODE 70 POINT NO 4

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2		
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN		
1	109.0	214.9	107.8	147.7	16.0	156.1	191.8	197.5	206.2	153.4	-175.8	-41.4	123.50	183.94	0.0365	0.0884		
2	115.6	211.9	114.3	146.9	17.1	152.8	199.2	203.0	214.9	155.2	-182.0	-50.2	131.23	183.83	0.0157	0.0707		
3	117.7	208.9	116.3	146.3	18.0	149.1	206.3	208.4	221.3	157.8	-188.3	-59.3	133.45	183.99	-0.0028	0.0544		
4	120.0	199.9	118.0	142.3	21.8	140.4	226.9	224.8	236.6	165.4	-205.1	-84.4	135.31	180.97	-0.0537	0.0081		
5	120.2	186.8	117.2	131.3	27.1	132.9	252.7	246.7	254.2	173.7	-225.6	-113.7	134.45	168.30	-0.1121	-0.0496		
6	118.6	175.3	114.8	120.3	30.1	127.5	276.7	268.5	272.0	185.4	-246.6	-141.0	131.90	154.79	-0.1573	-0.1021		
7	116.0	165.8	112.1	105.8	30.0	127.7	293.4	284.9	286.3	189.5	-263.4	-157.2	128.93	135.62	-0.1785	-0.1329		
8	113.3	160.7	109.5	97.3	29.4	127.9	298.7	290.4	290.8	189.3	-269.4	-162.4	125.86	124.39	-0.1801	-0.1386		
9	111.0	152.9	107.2	84.8	28.7	127.2	303.8	295.8	295.2	188.7	-275.1	-168.6	123.14	108.09	-0.1748	-0.1400		
SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	P02/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE	TOTAL	TOTAL	TOTAL	P01	TOTAL	TOTAL
1	8.4	46.6	58.43	15.68	0.3235	0.6265	0.6122	0.4473	1.22	7.48	13.16	42.75	0.4656	0.0406	0.0118	1.3651	97.04	97.17
2	8.5	46.2	57.83	18.88	0.3437	0.6173	0.6390	0.4520	2.45	8.58	11.43	38.95	0.4760	0.0649	0.0189	1.3536	94.86	95.08
3	8.8	45.6	58.30	22.10	0.3499	0.6080	0.6582	0.4595	3.54	9.52	11.28	36.20	0.4751	0.0628	0.0183	1.3494	94.71	94.93
4	10.5	44.6	60.12	30.66	0.3569	0.5809	0.7040	0.4867	5.27	10.94	10.61	29.46	0.4672	0.0536	0.0153	1.3384	94.75	94.96
5	13.0	45.3	62.61	40.81	0.3578	0.5413	0.7565	0.5032	5.64	10.53	9.66	21.79	0.4627	0.0725	0.0194	1.3170	91.71	92.02
6	14.7	46.5	65.10	49.41	0.3529	0.5060	0.8091	0.5351	5.79	10.04	8.36	15.69	0.4511	0.1007	0.0244	1.2995	87.06	87.54
7	15.0	50.2	67.01	55.96	0.3450	0.4760	0.8511	0.5440	5.57	9.07	8.41	11.05	0.4684	0.1626	0.0351	1.2873	78.59	79.34
8	15.0	52.6	67.94	58.99	0.3368	0.4601	0.8640	0.5422	5.64	8.88	9.58	8.95	0.4793	0.1900	0.0382	1.2820	75.04	75.91
9	15.0	56.2	68.75	63.23	0.3295	0.4365	0.8768	0.5389	5.28	8.27	12.20	5.52	0.4902	0.2207	0.0392	1.2701	70.84	71.81
SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE	
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN	
1	357.5	705.1	353.6	484.7	52.4	512.0	629.3	648.0	676.6	503.4	-576.9	-136.0	25.29	37.67	2.094	5.063	0.0500	
2	379.3	695.3	375.1	481.8	56.2	501.4	653.4	666.0	705.2	509.2	-597.2	-164.6	26.88	37.65	0.906	4.051	0.1000	
3	386.0	685.3	381.5	479.9	59.1	489.2	676.9	683.9	726.1	517.8	-617.8	-194.6	27.33	37.68	-0.162	3.116	0.1499	
4	393.6	655.9	387.0	466.8	71.6	460.8	744.6	737.6	776.3	542.7	-673.0	-276.9	27.71	37.06	-3.076	0.466	0.3000	
5	394.5	613.0	384.4	430.8	88.8	436.2	829.1	809.3	834.2	569.9	-740.3	-373.2	27.54	34.47	-6.424	-2.839	0.5000	
6	389.3	575.1	376.6	394.7	98.7	418.3	907.8	881.0	892.5	608.2	-809.1	-462.7	27.02	31.70	-9.014	-5.849	0.7000	
7	380.7	543.9	367.7	347.0	98.5	418.9	962.8	934.7	939.2	621.7	-864.2	-515.8	26.41	27.78	-10.229	-7.617	0.8500	
8	371.9	527.2	359.2	319.1	96.3	419.7	980.2	952.7	954.1	621.2	-883.8	-533.0	25.78	25.48	-10.320	-7.942	0.9000	
9	364.0	501.5	351.6	278.2	94.2	417.3	996.8	970.6	968.6	619.3	-902.5	-553.3	25.22	22.14	-10.015	-8.019	0.9500	
	WC1/A1	WC1/A1							T02/T01	P02/P01	EFF-AD	EFF-P						
	LBM/SEC	KG/SEC									ROTOR	ROTOR						
	SQFT	SQM									X	X						
	26.57	129.66							1.0925	1.3185	88.89	89.32						

# AIRFOIL AERODYNAMIC SUMMARY PRINT

70 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 106 SPEED CODE 70 POINT NO 4

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	226.6	194.2	168.6	189.0	151.3	44.4	205.37	236.28	0.1351	0.1477
2	225.0	195.4	168.9	189.9	148.7	46.1	206.30	238.47	0.1214	0.1314
3	223.1	197.6	169.0	191.5	145.7	48.8	207.09	241.62	0.1075	0.1159
4	216.2	193.3	165.9	184.8	138.6	56.7	204.99	234.83	0.0661	0.0740
5	203.6	183.9	154.3	173.3	132.9	61.6	192.37	220.89	0.0151	0.0241
6	191.4	173.9	141.4	160.8	128.9	66.3	177.47	204.73	-0.0320	-0.0252
7	181.3	166.1	126.2	150.6	130.2	70.0	158.26	190.66	-0.0660	-0.0655
8	176.3	162.5	118.2	146.5	130.8	70.3	147.96	184.90	-0.0783	-0.0810
9	168.9	155.0	107.2	139.2	130.5	68.2	133.88	174.84	-0.0921	-0.0983

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCH DEGREE	DEV DEGREE	TUN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	XEFF-A TOT-STG	XEFF-P TOT-STG
1	41.8	13.2	0.6634	0.5620	-8.41	-5.75	21.33	28.60	0.3053	0.1223	0.0427	0.9687	1.3211	1.0958	86.48	87.01
2	41.3	13.6	0.6586	0.5661	-7.36	-4.38	19.50	27.66	0.2974	0.0990	0.0353	0.9750	1.3190	1.0952	86.57	87.09
3	40.6	14.2	0.6529	0.5730	-7.29	-4.01	18.43	26.40	0.2639	0.0637	0.0231	0.9842	1.3272	1.0942	89.45	89.87
4	39.8	17.0	0.6318	0.5606	-8.34	-4.22	17.28	22.80	0.2505	0.0487	0.0185	0.9886	1.3219	1.0915	90.76	91.12
5	40.7	19.6	0.5932	0.5324	-11.07	-6.02	14.97	21.15	0.2433	0.0453	0.0182	0.9904	1.3034	1.0892	88.19	88.62
6	42.4	22.4	0.5551	0.5018	-15.82	-10.00	14.29	19.97	0.2418	0.0645	0.0272	0.9878	1.2835	1.0894	82.75	83.35
7	45.9	24.9	0.5228	0.4769	-19.85	-13.59	17.20	20.96	0.2469	0.0772	0.0335	0.9868	1.2706	1.0950	74.59	75.43
8	47.9	25.6	0.5070	0.4657	-20.97	-14.59	18.71	22.24	0.2517	0.0769	0.0337	0.9875	1.2673	1.0979	71.57	72.51
9	50.6	26.1	0.4842	0.4428	-21.28	-14.81	20.23	24.45	0.2699	0.0842	0.0372	0.9875	1.2546	1.0998	67.11	68.15

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	743.3	637.1	553.2	620.2	496.5	145.8	42.06	48.39	0.0550	7.743	8.463
2	738.3	641.2	554.1	623.2	487.9	151.1	42.25	48.84	0.1083	6.958	7.528
3	732.0	648.3	554.5	628.2	477.9	160.0	42.41	49.49	0.1610	6.161	6.639
4	709.2	634.3	544.2	606.5	454.8	185.9	41.98	48.09	0.3151	3.788	4.241
5	668.1	603.5	506.3	568.7	435.9	202.1	39.40	45.24	0.5165	0.864	1.382
6	627.8	570.5	463.9	527.5	423.0	217.4	36.35	41.93	0.7145	-1.832	-1.444
7	594.9	544.9	414.1	494.1	427.1	229.7	32.41	39.05	0.8603	-3.782	-3.756
8	578.4	533.3	387.9	480.8	429.1	230.8	30.30	37.87	0.9080	-4.489	-4.638
9	554.1	508.5	351.8	456.6	428.0	223.8	27.42	35.81	0.9548	-5.280	-5.632
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1	PO/PO STAGE	EFF-AD STAGE X	EFF-P STAGE X
	8529.90	68.92	31.25				1.0925	0.9860	1.3001	84.20	84.78

## AIRFOIL AERODYNAMIC SUMMARY PRINT

50 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 50 POINT NO 3

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	U-1 M/SEC	U-2 M/SEC	V'-1 M/SEC	V'-2 M/SEC	VO'-1 M/SEC	VO'-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	83.0	157.9	80.8	115.0	19.1	108.2	137.0	141.1	142.9	119.6	-117.9	-32.9	95.40	139.94	0.0370	0.0885
2	87.8	155.4	85.4	112.7	20.4	106.9	142.3	145.0	148.9	119.0	-121.9	-38.1	100.99	137.52	0.0168	0.0710
3	88.9	152.3	86.5	111.7	20.7	103.6	147.4	148.9	153.4	120.5	-126.7	-45.3	102.20	136.49	-0.0007	0.0551
4	89.6	144.4	86.8	109.0	22.1	94.7	162.2	160.6	164.8	127.4	-140.1	-65.9	102.57	133.91	-0.6487	0.0098
5	89.8	134.8	86.0	102.2	25.8	87.8	180.6	176.3	177.1	135.1	-154.8	-88.4	101.69	126.12	-0.1031	-0.0459
6	88.7	125.2	84.2	94.6	27.8	82.0	197.7	191.9	189.6	145.0	-169.9	-109.9	99.58	116.97	-0.1459	-0.0961
7	86.9	118.2	82.4	87.1	27.5	79.9	209.7	203.6	199.9	151.4	-182.1	-123.8	97.48	107.62	-0.1690	-0.1277
8	84.5	112.7	80.2	80.7	26.8	78.8	213.5	207.5	203.2	151.9	-186.7	-128.7	94.83	99.46	-0.1734	-0.1352
9	82.2	103.0	78.0	68.7	26.0	76.8	217.1	211.4	206.4	151.1	-191.1	-134.6	92.19	84.47	-0.1717	-0.1386

SL	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	M-1	M-2	M'-1	M'-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D FAC	OMEGA-B TOTAL	LOSS-P TOTAL	P02/ P01	KEFF-A TOTAL	KEFF-P TOTAL
1	13.3	43.3	55.51	15.98	0.2455	0.4638	0.4225	0.3513	-1.71	4.56	13.46	39.53	0.3561	0.0107	0.0031	1.1598	99.15	99.16
2	13.4	43.5	54.95	18.69	0.2598	0.4562	0.4405	0.3494	-0.43	5.70	11.24	36.25	0.3832	0.0528	0.0154	1.1532	95.47	95.57
3	13.5	42.9	55.68	22.12	0.2631	0.4470	0.4538	0.3536	0.92	6.90	11.30	33.56	0.3862	0.0548	0.0159	1.1493	94.97	95.05
4	14.3	41.0	58.23	31.15	0.2651	0.4235	0.4876	0.3734	3.38	9.05	11.10	27.08	0.3728	0.0387	0.0110	1.1410	95.66	95.75
5	16.7	40.6	60.96	40.77	0.2658	0.3949	0.5240	0.3959	3.99	8.88	9.61	20.19	0.3585	0.0395	0.0106	1.1291	94.56	94.65
6	18.3	40.8	63.67	49.14	0.2623	0.3663	0.5610	0.4244	4.35	8.60	8.08	14.55	0.3395	0.0524	0.0128	1.1175	91.37	91.49
7	18.5	42.3	65.69	54.72	0.2569	0.3451	0.5912	0.4421	4.25	7.75	7.17	10.97	0.3419	0.0906	0.0202	1.1105	83.97	84.22
8	18.5	44.2	66.79	57.81	0.2499	0.3289	0.6007	0.4431	4.49	7.73	8.40	8.98	0.3503	0.1157	0.0241	1.1056	79.20	79.51
9	18.4	48.1	67.84	62.87	0.2429	0.3001	0.6101	0.4400	4.36	7.35	11.84	4.96	0.3633	0.1527	0.0275	1.0949	71.72	72.08

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN
1	272.5	518.1	265.1	377.3	62.8	355.1	449.7	463.0	469.0	392.4	-386.8	-108.0	19.54	28.66	2.118	5.070	0.0500
2	288.2	509.8	280.3	369.9	66.8	350.8	466.9	475.9	488.5	390.5	-400.1	-125.0	20.68	28.17	0.963	4.070	0.1000
3	291.7	499.7	283.7	366.3	68.0	339.9	483.7	488.6	503.3	395.4	-415.7	-148.7	20.93	27.95	-0.040	3.155	0.1499
4	293.9	473.8	284.8	357.6	72.5	310.9	532.0	527.1	540.7	417.8	-459.6	-216.2	21.01	27.43	-2.787	0.560	0.3000
5	294.7	442.2	282.3	335.4	84.6	288.2	592.4	578.3	581.0	443.4	-507.8	-290.1	20.83	25.83	-5.908	-2.632	0.5000
6	290.9	410.7	276.2	310.4	91.2	268.9	648.7	629.5	622.2	475.8	-557.5	-360.6	20.39	23.96	-8.359	-5.503	0.7000
7	285.0	387.7	270.3	285.9	90.4	261.8	687.9	667.9	655.9	496.6	-597.6	-406.1	19.96	22.04	-9.683	-7.318	0.8500
8	277.3	369.9	263.0	264.7	87.8	258.4	700.4	680.7	666.6	498.4	-612.6	-422.3	19.42	20.37	-9.934	-7.748	0.9000
9	269.7	338.1	255.8	225.4	85.2	252.0	712.2	693.5	677.2	495.7	-627.1	-441.5	18.88	17.30	-9.839	-7.938	0.9500
	WC1/A1		WC1/A1				T02/T01		P02/P01		EFF-AD		EFF-P				
	LBM/SEC		KG/SEC								ROTOR		ROTOR				
	SQFT		SQM								%		%				
	20.0%		98.04						1.0385		1.1291		91.70		91.85		

50 PERCENT DESIGN SPEED (STATOR PERFORMANCE) AIRFOIL AERODYNAMIC SUMMARY PRINT  
 RUN NO 104 SPEED CODE 50 POINT NO 3

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	167.3	158.8	130.3	154.6	104.9	36.3	156.54	184.35	0.1345	0.1467
2	165.9	159.6	129.2	154.8	104.0	39.0	155.31	185.12	0.1198	0.1291
3	163.7	160.0	128.7	154.8	101.1	40.2	154.92	185.73	0.1047	0.1124
4	157.3	153.6	126.5	147.6	93.5	42.4	152.88	177.66	0.0607	0.0680
5	148.1	145.8	119.2	138.0	87.8	46.9	144.71	166.46	0.0076	0.0165
6	138.0	137.3	110.3	128.2	82.9	49.2	134.39	154.59	-0.0400	-0.0328
7	130.4	129.7	101.8	120.0	81.4	49.2	124.13	144.42	-0.0721	-0.0710
8	125.0	124.6	95.7	115.1	80.5	47.7	116.45	138.25	-0.0826	-0.0848
9	116.2	116.8	85.4	107.6	78.8	45.5	103.77	128.89	-0.0942	-0.1002

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	XEFF-A TOT-STG	XEFF-P TOT-STG
1	38.7	13.2	0.4929	0.4665	-11.48	-8.81	21.32	25.55	0.1916	0.1223	0.0427	0.9813	1.1373	1.0437	85.77	86.03
2	38.7	14.1	0.4884	0.4692	-9.89	-6.91	20.01	24.62	0.1729	0.0892	0.0317	0.9866	1.1368	1.0434	86.10	86.36
3	38.0	14.5	0.4819	0.4705	-9.90	-6.62	18.68	23.55	0.1531	0.0556	0.0201	0.9919	1.1391	1.0424	89.42	89.62
4	36.4	16.0	0.4630	0.4516	-11.77	-7.66	16.24	20.41	0.1451	0.0618	0.0236	0.9916	1.1302	1.0399	89.35	89.54
5	36.3	18.8	0.4352	0.4283	-15.43	-10.38	14.19	17.57	0.1279	0.0713	0.0288	0.9914	1.1182	1.0371	87.41	87.61
6	36.9	21.0	0.4050	0.4028	-21.25	-15.43	12.87	15.95	0.1159	0.0970	0.0414	0.9897	1.1054	1.0354	82.17	82.43
7	38.6	22.3	0.3818	0.3798	-27.10	-20.84	14.55	16.35	0.1256	0.1405	0.0622	0.9866	1.0953	1.0363	72.74	73.07
8	40.1	22.5	0.3656	0.3644	-28.77	-22.39	15.59	17.57	0.1353	0.1613	0.0723	0.9858	1.0897	1.0368	67.64	68.03
9	42.7	22.9	0.3392	0.3411	-29.17	-22.69	17.03	19.76	0.1414	0.1771	0.0803	0.9864	1.0801	1.0366	60.84	61.27

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	549.0	520.9	427.7	507.1	344.3	119.1	32.06	37.76	0.0550	7.706	8.403
2	544.3	523.7	423.9	507.8	341.4	128.0	31.81	37.91	0.1083	6.865	7.399
3	537.1	524.9	422.4	508.0	331.8	131.7	31.73	38.04	0.1610	6.001	6.439
4	516.2	504.0	415.2	484.4	306.8	139.0	31.31	36.39	0.3151	3.476	3.896
5	485.8	478.3	391.2	452.8	288.1	154.0	29.64	34.09	0.5165	0.433	0.944
6	452.8	450.3	361.9	420.5	272.0	161.3	27.52	31.66	0.7145	-2.291	-1.881
7	427.7	425.6	334.2	393.8	267.0	161.3	25.42	29.58	0.8603	-4.131	-4.071
8	410.2	408.9	313.9	377.8	264.1	156.6	23.85	28.31	0.9080	-4.734	-4.860
9	381.3	383.3	280.3	353.1	258.5	149.2	21.25	26.40	0.9548	-5.398	-5.740
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1	PO/PO STAGE	EFF-AD STAGE %	EFF-P STAGE %
	6095.00	52.11	23.63				1.0385	0.9892	1.1159	83.37	83.65

## AIRFOIL AERODYNAMIC SUMMARY PRINT

50 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 50 POINT NO 4

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2		
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN		
1	81.5	157.1	79.3	112.8	18.8	109.4	137.1	141.1	142.3	117.2	-118.2	-31.8	93.75	137.55	0.0370	0.0886		
2	86.2	154.5	83.9	110.6	20.0	108.0	142.3	145.0	148.3	116.6	-122.3	-37.1	99.27	135.18	0.0168	0.0713		
3	87.3	151.6	84.9	109.6	20.4	104.8	147.4	148.9	152.8	118.1	-127.1	-44.1	100.49	134.26	-0.0007	0.0555		
4	88.0	144.2	85.2	107.2	21.3	96.3	162.2	160.7	164.2	125.1	-140.4	-64.3	100.83	132.14	-0.0489	0.0102		
5	88.2	134.8	84.4	100.6	25.4	89.7	180.6	176.3	176.6	132.7	-155.2	-86.5	99.90	124.50	-0.1043	-0.0459		
6	87.1	125.3	82.6	92.7	27.4	84.2	197.7	191.9	189.3	142.0	-170.4	-107.6	97.88	114.93	-0.1478	-0.0966		
7	85.2	118.3	80.8	84.6	27.1	82.7	209.7	203.6	199.6	147.5	-182.6	-120.9	95.72	104.80	-0.1707	-0.1284		
8	82.9	113.0	78.6	77.7	26.4	82.0	213.5	207.5	202.9	147.6	-187.1	-125.5	93.12	96.06	-0.1745	-0.1356		
9	80.7	104.5	76.5	66.8	25.6	80.4	217.1	211.4	206.2	147.1	-191.5	-131.0	90.56	82.36	-0.1720	-0.1385		
SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PO2/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	13.3	44.1	56.08	15.75	0.2409	0.4612	0.4207	0.3440	-1.14	5.14	13.23	40.33	0.3736	0.0191	0.0056	1.1615	98.52	98.54
2	13.4	44.3	55.53	18.56	0.2550	0.4534	0.4386	0.3422	0.15	6.28	11.11	36.97	0.3998	0.0592	0.0173	1.1550	95.05	95.14
3	13.5	43.8	56.24	21.96	0.2583	0.4447	0.4520	0.3465	1.48	7.46	11.14	34.27	0.4026	0.0602	0.0175	1.1517	94.59	94.70
4	14.3	41.9	58.76	30.94	0.2602	0.4225	0.4858	0.3665	3.90	9.58	10.90	27.81	0.3885	0.0412	0.0117	1.1446	95.52	95.62
5	16.8	41.6	61.48	40.61	0.2608	0.3947	0.5225	0.3885	4.51	9.40	9.46	20.87	0.3753	0.0421	0.0113	1.1338	94.44	94.52
6	18.3	42.1	64.15	49.13	0.2575	0.3662	0.5600	0.4153	4.84	9.09	8.07	15.02	0.3598	0.0602	0.0147	1.1226	90.55	90.70
7	18.6	44.2	66.16	54.88	0.2520	0.3453	0.5903	0.4305	4.72	8.22	7.32	11.29	0.3667	0.1040	0.0231	1.1161	82.71	82.96
8	18.6	46.4	67.24	58.12	0.2451	0.3292	0.5998	0.4300	4.94	8.18	8.70	9.12	0.3778	0.1323	0.0273	1.1113	77.78	78.11
9	18.5	50.2	68.26	62.91	0.2384	0.3039	0.6093	0.4278	4.78	7.77	11.88	5.34	0.3895	0.1661	0.0298	1.1022	71.42	71.81
SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE	
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN	
1	267.4	515.4	260.2	370.0	61.8	358.8	449.7	463.1	467.0	384.4	-387.9	-104.3	19.20	28.17	2.118	5.079	0.0500	
2	282.9	507.1	275.2	362.8	65.6	354.2	466.9	475.9	486.6	382.7	-401.4	-121.7	20.33	27.69	0.964	4.087	0.1000	
3	286.5	497.5	278.5	359.5	66.8	343.9	483.7	488.7	501.4	387.6	-416.9	-144.8	20.58	27.50	-0.039	3.177	0.1499	
4	288.6	473.0	279.7	351.9	71.4	316.1	532.1	527.1	538.9	410.3	-460.6	-211.0	20.65	27.06	-2.802	0.586	0.3000	
5	289.3	442.3	277.0	330.1	83.4	294.4	592.5	578.4	579.5	435.4	-509.1	-283.9	20.46	25.50	-5.974	-2.628	0.5000	
6	285.6	411.0	271.1	304.1	89.8	276.4	648.8	629.6	621.3	466.1	-559.0	-353.2	20.05	23.54	-8.468	-5.535	0.7000	
7	279.6	388.2	265.1	277.6	89.0	271.4	688.0	668.0	655.0	484.1	-599.0	-396.6	19.60	21.46	-9.779	-7.355	0.8500	
8	272.1	370.7	257.9	255.0	86.6	269.1	700.4	680.8	665.8	484.2	-613.8	-411.7	19.07	19.67	-9.997	-7.767	0.9000	
9	264.7	342.8	251.0	219.1	84.1	263.7	712.3	693.6	676.5	482.5	-628.2	-429.9	18.55	16.87	-9.853	-7.938	0.9500	
	WC1/A1	WC1/A1							TO2/TO1	PO2/PO1	EFF-AD	EFF-P						
	LBM/SEC	KG/SEC									ROTOR	ROTOR						
	SQFT	SQM									%	%						
	19.74	96.33							1.0400	1.1335	91.11	91.27						

# AIRFOIL AERODYNAMIC SUMMARY PRINT

50 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 104 SPEED CODE 50 POINT NO 4

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	165.9	152.6	127.6	148.6	106.0	35.0	153.73	179.07	0.1349	0.1469
2	164.4	153.6	126.5	149.5	105.1	35.0	152.53	180.68	0.1206	0.1296
3	162.4	154.2	126.1	150.1	102.3	35.3	152.27	181.88	0.1057	0.1129
4	156.5	148.6	124.3	143.6	95.1	38.2	150.67	174.63	0.0621	0.0689
5	147.5	141.0	117.1	133.9	89.7	44.0	142.69	163.15	0.0097	0.0181
6	137.6	133.0	108.0	124.8	85.2	46.0	132.08	152.03	-0.0372	-0.0307
7	130.2	126.0	99.1	117.2	84.4	46.3	121.18	142.42	-0.0698	-0.0693
8	125.0	121.8	92.6	113.2	83.9	45.0	113.12	137.31	-0.0809	-0.0835
9	117.1	114.8	83.2	106.5	82.4	43.0	101.45	128.81	-0.0934	-0.0995

SL	B-1	B-2	M-1	M-2	INCS	INCM	DEV	TURN	D-FAC	OMEGA-B	LOSS-P	PO2/	PO/PG	TO/TO	XEFF-A	XEFF-P
	DEGREE	DEGREE			DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	STAGE	STAGE	TOT-STG	TOT-STG
1	39.6	13.2	0.4883	0.4476	-10.59	-7.92	21.37	26.38	0.2267	0.1165	0.0407	0.9825	1.1403	1.0444	86.22	86.48
2	39.6	13.1	0.4837	0.4504	-9.01	-6.03	19.03	26.48	0.2144	0.0846	0.0302	0.9875	1.1399	1.0441	86.46	86.71
3	38.9	13.2	0.4777	0.4525	-9.00	-5.72	17.36	25.76	0.1970	0.0513	0.0187	0.9926	1.1426	1.0433	89.70	89.89
4	37.3	14.8	0.4600	0.4361	-10.81	-6.69	15.11	22.50	0.1877	0.0531	0.0204	0.9929	1.1355	1.0410	90.31	90.49
5	37.4	18.2	0.4333	0.4134	-14.35	-9.31	13.60	19.24	0.1722	0.0640	0.0260	0.9923	1.1241	1.0386	88.26	88.44
6	38.3	20.3	0.4034	0.3895	-19.90	-14.08	12.14	18.03	0.1634	0.0803	0.0344	0.9915	1.1127	1.0372	83.36	83.61
7	40.4	21.6	0.3807	0.3683	-25.32	-19.06	13.84	18.85	0.1752	0.1143	0.0508	0.9891	1.1038	1.0386	74.26	74.61
8	42.2	21.7	0.3649	0.3556	-26.70	-20.32	14.77	20.46	0.1826	0.1199	0.0541	0.9894	1.0998	1.0394	69.98	70.40
9	44.7	22.0	0.3416	0.3346	-27.14	-20.66	16.12	22.71	0.1915	0.1257	0.0574	0.9902	1.0916	1.0395	64.23	64.68

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	PCT TE	EPSI-1	EPSI-2
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	SPAN	DEGREE	DEGREE
1	544.4	500.8	418.7	487.5	347.9	114.9	31.48	36.68	0.0550	7.731	8.417
2	539.5	503.8	415.0	490.6	344.7	114.7	31.24	37.00	0.1083	6.909	7.423
3	532.8	505.9	413.8	492.5	335.7	115.7	31.19	37.25	0.1610	6.056	6.471
4	513.4	487.6	407.7	471.3	312.0	125.2	30.86	35.77	0.3151	3.556	3.947
5	484.0	462.5	384.3	439.4	294.3	144.4	29.22	33.42	0.5165	0.555	1.035
6	451.5	436.4	354.5	409.4	279.6	151.0	27.05	31.14	0.7145	-2.132	-1.760
7	427.0	413.5	325.1	384.5	276.8	152.0	24.82	29.17	0.8603	-4.000	-3.968
8	410.0	399.7	303.9	371.5	275.1	147.7	23.17	28.12	0.9080	-4.637	-4.783
9	384.4	376.7	273.1	349.3	270.5	141.1	20.78	26.38	0.9548	-5.352	-5.702
	NCORR	WCORR	WCORR	WCORR			TO/TO	PO2/PO1	PO/PO	EFF-AD	EFF-P
	INLET	INLET	INLET	INLET			STAGE	STAGE	STAGE	STAGE	STAGE
	RPM	LBM/SEC	KG/SEC								
	6095.60	51.20	23.22				1.0400	0.9908	1.1231	84.27	84.53

## AIRFOIL AERODYNAMIC SUMMARY PRINT

50 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 50 POINT NO 5

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	U-1 M/SEC	U-2 M/SEC	V'-1 M/SEC	V'-2 M/SEC	VO'-1 M/SEC	VO'-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	78.9	155.6	76.8	109.3	18.3	110.7	137.1	141.1	141.4	115.4	-118.7	-30.4	90.99	133.82	0.0369	0.0888
2	83.7	153.3	81.8	107.5	19.5	109.3	142.3	145.0	147.3	113.3	-122.8	-35.8	96.52	132.00	0.0166	0.0717
3	84.7	150.6	82.3	106.7	19.8	106.3	147.4	148.9	151.9	114.9	-127.6	-42.6	97.63	131.24	-0.0011	0.0559
4	85.1	143.4	82.4	104.1	21.1	98.5	162.2	160.6	163.4	121.3	-141.1	-62.1	97.71	128.88	-0.0498	0.0108
5	85.2	133.8	81.6	96.8	24.8	92.3	180.6	176.3	175.9	128.2	-155.8	-84.0	96.75	120.38	-0.1058	-0.0456
6	84.2	124.8	79.8	89.1	26.6	87.4	197.7	191.9	188.8	137.3	-171.1	-104.5	94.77	117.08	-0.1488	-0.0965
7	82.3	117.9	78.0	80.0	26.4	86.6	209.7	203.6	199.2	141.7	-183.3	-117.0	92.58	99.60	-0.1700	-0.1276
8	80.0	114.0	75.8	74.3	25.6	85.5	213.5	207.5	202.6	142.0	-187.9	-121.0	89.99	92.39	-0.1726	-0.1343
9	77.8	107.7	73.7	65.5	24.8	85.4	217.1	211.4	205.9	142.0	-192.3	-125.9	87.43	81.26	-0.1699	-0.1375

SL	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	M-1	M-2	M'-1	M'-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D FAC	OMEGA-B TOTAL	LOSS-P TOTAL	P02/ P01	XEFF-A TOTAL	XEFF-P TOTAL
1	13.4	45.4	57.04	15.58	0.2332	0.4563	0.4177	0.3328	-0.18	6.10	13.05	41.47	0.3997	0.0270	0.0078	1.1640	97.98	98.02
2	13.4	45.5	56.44	18.42	0.2473	0.4495	0.4356	0.3322	1.07	7.19	10.96	38.03	0.4221	0.0602	0.0176	1.1585	95.12	95.22
3	13.5	44.9	57.17	21.80	0.2503	0.4413	0.4490	0.3366	2.41	8.39	10.98	35.36	0.4248	0.0604	0.0176	1.1559	94.75	94.86
4	14.3	43.4	59.73	30.80	0.2515	0.4198	0.4832	0.3550	4.88	10.55	10.76	28.93	0.4146	0.0454	0.0129	1.1501	95.30	95.38
5	16.9	43.5	62.40	40.84	0.2521	0.3912	0.5200	0.3748	5.43	10.32	9.68	21.56	0.4051	0.0509	0.0136	1.1396	93.61	93.73
6	18.4	44.3	65.02	49.39	0.2488	0.3645	0.5583	0.4010	5.71	9.96	8.33	15.63	0.3908	0.0705	0.0171	1.1303	89.67	89.86
7	18.7	47.1	66.99	55.49	0.2433	0.3434	0.5888	0.4129	5.55	9.05	7.94	11.49	0.4031	0.1211	0.0265	1.1243	81.45	81.74
8	18.7	49.2	68.05	58.32	0.2364	0.3317	0.5986	0.4132	5.75	8.99	8.91	9.73	0.4139	0.1469	0.0301	1.1219	77.48	77.84
9	18.6	52.4	69.05	62.43	0.2297	0.3127	0.6082	0.4123	5.58	8.57	11.40	6.62	0.4243	0.1760	0.0321	1.1158	72.66	73.09

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	EPSI-1 DEGREE	EPSI-2 DEGREE	PCT TE SPAN
1	259.0	510.4	251.9	358.6	60.1	363.2	449.7	463.1	463.9	372.2	-389.5	-99.9	18.64	27.41	2.113	5.089	0.0500
2	274.5	503.0	267.0	352.8	63.9	358.5	466.9	475.9	483.4	371.8	-403.0	-117.3	19.77	27.04	0.953	4.107	0.1000
3	277.8	494.1	270.1	349.9	64.9	348.8	483.7	488.7	498.3	376.8	-418.7	-139.8	20.00	26.88	-0.061	3.205	0.1499
4	279.1	470.4	270.4	341.7	69.1	323.3	532.0	527.1	536.1	397.9	-463.0	-203.8	20.01	26.40	-2.855	0.619	0.3000
5	279.7	438.9	267.6	317.7	81.2	302.8	592.4	578.3	577.0	420.5	-511.2	-275.5	19.81	24.65	-6.059	-2.612	0.5000
6	276.1	409.6	262.0	292.5	87.2	286.7	648.7	629.5	619.6	450.6	-561.5	-342.8	19.41	22.75	-8.528	-5.532	0.7000
7	270.0	386.8	255.8	262.6	86.5	284.1	688.0	667.9	633.6	465.1	-601.4	-383.8	18.96	20.40	-9.741	-7.310	0.8500
8	262.5	374.1	248.7	242.9	84.0	283.7	700.4	680.8	664.7	466.0	-616.4	-397.1	18.43	18.92	-9.891	-7.696	0.9000
9	255.1	353.2	241.8	214.9	81.4	280.3	712.2	693.6	675.6	465.8	-630.8	-413.2	17.91	16.64	-9.736	-7.880	0.9500
	WC1/A1 LBM/SEC	WC1/A1 KG/SEC							T02/T01	P02/P01	EFF-AD ROTOR	EFF-P ROTOR					
	SQFT	SQM									%	%					
	19.12	93.31							1.0422	1.1401	90.48	90.67					

AIRFOIL AERODYNAMIC SUMMARY PRINT  
50 PERCENT DESIGN SPEED (STATOR PERFORMANCE) RUN NO 104 SPEED CODE 50 POINT NO 5

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	163.3	143.5	123.1	140.4	107.3	29.3	149.14	171.82	0.1354	0.1472
2	162.1	143.7	122.4	140.7	106.3	29.1	148.41	172.48	0.1216	0.1303
3	160.2	144.9	122.1	141.8	103.8	29.7	148.25	174.25	0.1075	0.1142
4	154.6	141.0	120.2	136.7	97.3	34.4	146.56	168.64	0.0651	0.0710
5	145.5	134.0	112.6	128.0	92.3	39.7	137.96	158.20	0.0133	0.0206
6	136.4	126.8	103.8	119.4	88.4	42.8	127.69	147.55	-0.0341	-0.0285
7	129.1	120.7	94.2	112.4	88.3	43.9	115.83	138.53	-0.0681	-0.0681
8	125.3	117.9	88.8	109.7	88.4	43.2	109.04	134.94	-0.0801	-0.0829
9	119.4	111.9	81.1	103.9	87.6	41.5	99.47	127.54	-0.0932	-0.0995

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	P02/ P01	PO/PO STAGE	TO/TO STAGE	%EFF-A TOT-STG	%EFF-P TOT-STG
1	41.0	11.8	0.4801	0.4195	-9.23	-6.56	19.88	29.22	0.2865	0.1114	0.0391	0.9838	1.1445	1.0453	86.88	87.13
2	40.9	11.7	0.4764	0.4203	-7.73	-4.75	17.57	29.22	0.2608	0.0940	0.0337	0.9865	1.1424	1.0451	86.07	86.33
3	40.3	11.8	0.4708	0.4239	-7.66	-4.38	15.97	28.50	0.2615	0.0579	0.0212	0.9919	1.1459	1.0445	89.31	89.51
4	38.9	14.1	0.4539	0.4126	-9.24	-5.12	14.35	24.83	0.2436	0.0449	0.0173	0.9941	1.1427	1.0427	91.14	91.31
5	39.3	17.2	0.4268	0.3919	-12.46	-7.41	12.63	22.11	0.2302	0.0437	0.0178	0.9949	1.1332	1.0406	89.66	89.83
6	40.4	19.7	0.3992	0.3704	-17.75	-11.93	11.59	20.72	0.2237	0.0553	0.0238	0.9943	1.1236	1.0398	85.13	85.37
7	43.2	21.3	0.3770	0.3517	-22.57	-16.31	13.61	21.82	0.2341	0.0747	0.0333	0.9930	1.1165	1.0418	76.55	76.90
8	44.9	21.5	0.3652	0.3431	-23.97	-17.59	14.58	23.38	0.2408	0.0739	0.0334	0.9934	1.1148	1.0431	73.20	73.60
9	47.2	21.8	0.3476	0.3252	-24.64	-18.16	15.88	25.44	0.2590	0.0846	0.0387	0.9932	1.1083	1.0438	68.15	68.61

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	535.9	470.7	403.9	460.8	352.2	96.1	30.55	35.19	0.0550	7.755	8.434
2	531.9	471.5	401.4	461.7	348.9	95.6	30.40	35.32	0.1083	6.970	7.466
3	525.7	475.3	400.4	465.2	340.6	97.3	30.36	35.69	0.1610	6.159	6.542
4	507.2	462.6	394.2	448.7	319.1	112.8	30.02	34.54	0.3151	3.729	4.066
5	477.5	439.7	369.3	420.0	302.7	130.2	28.25	32.40	0.5165	0.762	1.178
6	447.4	416.0	340.6	391.7	290.1	140.3	26.15	30.22	0.7145	-1.956	-1.634
7	423.7	395.9	309.0	368.7	289.8	144.1	23.72	28.37	0.8603	-3.902	-3.901
8	411.1	386.8	291.3	359.9	290.1	141.7	22.33	27.64	0.9080	-4.589	-4.752
9	391.8	367.1	266.1	340.9	287.5	136.1	20.37	26.12	0.9548	-5.342	-5.699
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	P02/P01	PO/PO STAGE	EFF-AD STAGE	EFF-P STAGE
	6095.20	49.60	22.49				1.0422	0.9928	1.1319	85.42	85.68



## AIRFOIL AERODYNAMIC SUMMARY PRINT

50 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 50 POINT NO 6

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	U-1 M/SEC	U-2 M/SEC	V'-1 M/SEC	V'-2 M/SEC	VO'-1 M/SEC	VO'-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	75.0	153.5	72.9	104.3	17.4	112.5	137.0	141.1	140.1	108.2	-119.6	-28.6	86.72	128.47	0.0366	0.0889
2	79.5	151.0	77.3	102.2	18.6	111.1	142.3	145.0	145.8	107.7	-123.7	-33.9	92.02	126.23	0.0161	0.0720
3	80.5	148.4	78.2	101.2	18.9	108.5	147.4	148.9	150.4	109.0	-128.5	-40.5	93.06	125.24	-0.0016	0.0565
4	80.7	142.0	78.2	99.5	19.9	101.3	162.2	160.6	162.3	115.9	-142.2	-59.4	92.99	123.87	-0.0512	0.0113
5	80.8	133.1	77.4	92.6	23.4	95.5	180.6	176.3	175.2	122.8	-157.2	-80.7	92.09	115.89	-0.1092	-0.0461
6	79.7	124.6	75.7	84.1	24.9	92.0	197.7	191.9	188.7	130.5	-172.9	-99.9	90.18	105.41	-0.1545	-0.0990
7	77.9	118.0	73.9	72.5	24.6	93.1	209.7	203.6	199.3	132.1	-185.0	-110.5	88.06	90.71	-0.1732	-0.1289
8	75.6	115.4	71.7	67.9	23.9	93.3	213.5	207.5	202.7	132.9	-189.6	-114.2	85.40	84.92	-0.1732	-0.1344
9	73.3	111.4	69.5	62.1	23.1	92.5	217.1	211.4	206.1	134.1	-194.0	-118.8	82.77	77.52	-0.1690	-0.1370

SL	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	M-1	M-2	M'-1	M'-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	XEFF-A TOTAL	XEFF-P TOTAL
1	13.4	47.2	58.56	15.34	0.2214	0.4496	0.4136	0.3170	1.34	7.62	12.82	43.22	0.4375	0.0384	0.0112	1.1676	97.26	97.31
2	13.5	47.4	57.95	18.38	0.2350	0.4421	0.4309	0.3155	2.57	8.70	10.93	39.57	0.4602	0.0703	0.0206	1.1624	94.56	94.67
3	13.6	47.0	58.67	21.82	0.2377	0.4342	0.4445	0.3190	3.91	9.89	11.00	36.85	0.4647	0.0723	0.0211	1.1603	94.03	94.15
4	14.3	45.5	61.23	30.82	0.2384	0.4150	0.4796	0.3388	6.38	12.05	10.78	30.40	0.4519	0.0527	0.0150	1.1572	94.83	94.94
5	16.8	45.8	63.82	40.98	0.2389	0.3885	0.5177	0.3587	6.86	11.74	9.83	22.84	0.4429	0.0578	0.0154	1.1490	93.21	93.35
6	18.2	47.4	66.39	49.78	0.2355	0.3631	0.5576	0.3804	7.08	11.33	8.72	16.61	0.4395	0.0922	0.0222	1.1414	87.71	87.93
7	18.5	52.0	68.26	56.61	0.2302	0.3427	0.5886	0.3838	6.82	10.32	9.06	11.65	0.4675	0.1609	0.0342	1.1365	78.16	78.54
8	18.4	53.8	69.31	59.14	0.2232	0.3347	0.5985	0.3855	7.01	10.25	9.73	10.16	0.4757	0.1818	0.0364	1.1362	75.40	75.84
9	18.4	56.0	70.30	62.34	0.2163	0.3228	0.6083	0.3884	6.83	9.81	11.30	7.96	0.4796	0.2000	0.0366	1.1338	72.71	73.20

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	EPSI-1 DEGREE	EPSI-2 DEGREE	PCT TE SPAN
1	246.0	503.5	239.3	342.3	57.2	369.2	449.7	463.0	459.6	355.0	-392.4	-93.8	17.76	26.31	2.096	5.096	0.0500
2	261.0	495.4	253.7	335.5	61.2	364.5	466.9	475.9	478.5	353.5	-405.7	-111.3	18.85	25.85	0.925	4.125	0.1000
3	264.0	486.7	256.6	332.1	62.0	355.9	483.7	488.6	493.6	357.6	-421.6	-132.8	19.06	25.65	-0.093	3.235	0.1499
4	264.7	465.8	256.5	326.4	65.3	332.2	532.0	527.1	532.5	380.2	-466.7	-194.9	19.04	25.37	-2.933	0.649	0.3000
5	265.3	436.6	253.9	303.8	76.8	313.5	592.4	578.3	574.8	403.0	-515.7	-264.8	18.86	23.73	-6.259	-2.644	0.5000
6	261.5	408.9	248.5	275.8	81.6	301.8	648.7	629.5	619.2	428.3	-567.1	-327.7	18.47	21.59	-8.852	-5.672	0.7000
7	255.6	387.1	242.5	237.8	80.8	305.4	687.9	667.9	653.8	433.6	-607.1	-362.5	18.04	18.58	-9.924	-7.385	0.8500
8	248.0	378.6	235.3	222.9	78.4	306.0	700.4	680.7	665.0	436.0	-622.0	-374.7	17.49	17.39	-9.924	-7.699	0.9000
9	240.4	365.6	228.1	203.6	75.8	303.6	712.2	693.5	676.1	439.9	-636.4	-389.9	16.95	15.88	-9.681	-7.848	0.9500

	WC1/A1 LBM/SEC SQFT	WC1/A1 KG/SEC SQM	TO2/TO1		PO2/PO1		EFF-AD ROTOR %	EFF-P ROTOR %
	18.19	88.77	1.0455	1.1494	89.25	89.45		

AIRFOIL AERODYNAMIC SUMMARY PRINT  
 50 PERCENT DESIGN SPEED (STATOR PERFORMANCE) RUN NO 104 SPEED CODE 50 POINT NO 6

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	159.9	132.2	116.9	129.1	109.1	28.3	142.75	160.73	0.1363	0.1479
2	158.5	133.1	115.9	129.9	108.1	28.8	141.60	162.07	0.1233	0.1315
3	156.7	134.5	115.4	131.3	105.9	29.2	141.29	164.18	0.1096	0.1158
4	151.8	131.3	114.3	127.6	99.9	31.1	140.53	160.01	0.0687	0.0739
5	143.6	125.3	107.2	119.9	95.5	36.5	132.51	150.67	0.0187	0.0252
6	135.1	119.4	97.9	112.6	93.1	39.8	121.30	141.43	-0.0282	-0.0231
7	128.3	114.3	86.2	106.2	95.0	42.3	106.77	132.91	-0.0652	-0.0650
8	125.7	112.5	81.8	103.9	95.4	43.2	101.19	129.78	-0.0788	-0.0814
9	121.9	107.4	76.5	98.5	94.9	43.0	94.60	122.77	-0.0930	-0.0991

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INC5 DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	XEFF-A TOT-STG	XEFF-P TOT-STG
1	42.9	12.3	0.4634	0.3853	-7.30	-4.63	20.46	30.58	0.3480	0.1065	0.0373	0.9851	1.1498	1.0466	87.41	87.65
2	42.9	12.5	0.4649	0.3881	-5.70	-2.72	18.37	30.46	0.3366	0.0817	0.0292	0.9888	1.1490	1.0465	87.23	87.47
3	42.4	12.5	0.4595	0.3925	-5.50	-2.22	16.70	29.92	0.3176	0.0468	0.0171	0.9937	1.1528	1.0461	90.00	90.19
4	41.1	13.7	0.4450	0.3830	-7.05	-2.94	13.93	27.44	0.3103	0.0393	0.0152	0.9950	1.1511	1.0449	91.51	91.67
5	41.7	16.9	0.4203	0.3653	-10.10	-5.06	12.35	24.74	0.3006	0.0361	0.0148	0.9959	1.1440	1.0435	90.27	90.44
6	43.6	19.5	0.3944	0.3475	-14.62	-8.80	11.35	24.10	0.2974	0.0357	0.0154	0.9964	1.1373	1.0439	85.39	85.66
7	47.8	21.7	0.3734	0.3318	-17.99	-11.73	13.99	26.03	0.3091	0.0415	0.0185	0.9962	1.1321	1.0475	76.04	76.45
8	49.4	22.6	0.3653	0.3262	-19.47	-13.09	15.68	26.77	0.3120	0.0422	0.0189	0.9963	1.1321	1.0492	73.39	73.84
9	51.1	23.6	0.3540	0.3111	-20.74	-14.26	17.70	27.53	0.3340	0.0684	0.0309	0.9943	1.1274	1.0503	69.42	69.92

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	524.8	433.7	383.7	423.6	358.0	92.8	29.24	32.92	0.0550	7.808	8.474
2	519.9	436.7	380.1	426.4	354.7	94.5	29.00	33.19	0.1083	7.065	7.537
3	514.0	441.4	378.7	430.9	347.6	95.9	28.94	33.63	0.1610	6.282	6.636
4	498.2	430.9	375.0	418.6	327.9	102.0	28.78	32.77	0.3151	3.938	4.235
5	471.1	411.2	351.8	393.4	313.4	119.8	27.14	30.86	0.5165	1.069	1.442
6	443.1	391.7	321.1	369.3	305.4	130.6	24.84	28.97	0.7145	-1.617	-1.325
7	420.9	375.0	282.9	348.4	311.6	138.8	21.87	27.22	0.8603	-3.734	-3.721
8	412.3	369.2	268.4	340.8	313.0	141.9	20.72	26.58	0.9080	-4.514	-4.661
9	400.0	352.5	251.1	323.1	311.4	141.0	19.38	25.14	0.9548	-5.330	-5.677
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1	PO/PO STAGE	EFF-AD STAGE %	EFF-P STAGE %
	6095.00	47.18	21.40				1.0455	0.9944	1.1430	85.59	85.85

## AIRFOIL AERODYNAMIC SUMMARY PRINT

50 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 104 SPEED CODE 50 POINT NO 7

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	U-1 M/SEC	U-2 M/SEC	V'-1 M/SEC	V'-2 M/SEC	VO'-1 M/SEC	VO'-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	71.2	151.8	69.2	100.7	16.4	113.6	137.1	141.2	139.1	104.4	-120.7	-27.6	82.58	124.56	0.0358	0.0889
2	75.6	149.4	73.5	99.0	17.5	111.9	142.3	145.1	144.9	104.4	-124.8	-33.2	87.77	122.74	0.0146	0.0720
3	76.4	147.2	74.3	98.2	17.8	109.7	147.4	149.0	149.4	105.7	-129.6	-39.3	88.70	122.04	-0.0040	0.0565
4	76.4	141.7	74.0	96.8	18.8	103.6	162.2	160.7	161.4	112.4	-143.4	-57.1	88.33	121.04	-0.0569	0.0104
5	76.5	133.1	73.2	89.4	21.9	98.7	180.6	176.3	174.7	118.4	-158.6	-77.6	87.42	112.33	-0.1204	-0.0500
6	75.1	125.7	71.3	77.5	23.6	99.0	197.7	191.9	188.2	120.9	-174.1	-92.9	85.12	97.40	-0.1691	-0.1059
7	73.1	119.6	69.3	63.7	23.3	101.2	209.7	203.6	198.9	120.6	-186.4	-102.4	82.80	79.98	-0.1839	-0.1338
8	70.8	117.4	67.1	60.0	22.5	100.9	213.5	207.5	202.4	122.4	-191.0	-106.6	80.16	75.32	-0.1802	-0.1376
9	68.5	114.5	64.9	55.7	21.7	100.0	217.1	211.4	205.9	124.6	-195.4	-111.4	77.53	69.90	-0.1721	-0.1385

SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	SCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	P02/	%EFF-A	%EFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	P01	TOTAL	TOTAL
1	13.3	48.5	60.09	15.33	0.2100	0.4443	0.4106	0.3057	2.87	9.15	12.81	44.76	0.4652	0.0479	0.0139	1.1703	96.67	96.75
2	13.4	48.5	59.46	18.54	0.2232	0.4371	0.4277	0.3054	4.08	10.21	11.08	40.92	0.4810	0.0734	0.0214	1.1657	94.48	94.61
3	13.5	48.2	60.17	21.82	0.2257	0.4305	0.4413	0.3092	5.41	11.39	11.00	38.35	0.4883	0.0734	0.0214	1.1648	94.13	94.27
4	14.3	46.9	62.71	30.54	0.2256	0.4140	0.4765	0.3282	7.86	13.54	10.50	32.17	0.4782	0.0543	0.0155	1.1640	94.92	95.02
5	16.7	47.7	65.29	40.89	0.2258	0.3882	0.5160	0.3452	8.32	13.21	9.74	24.39	0.4773	0.0708	0.0189	1.1566	92.12	92.27
6	18.4	51.8	67.84	50.05	0.2216	0.3654	0.5556	0.3515	8.53	12.78	9.00	17.79	0.5066	0.1398	0.0334	1.1513	83.22	83.54
7	18.7	57.7	69.69	58.00	0.2158	0.3464	0.5871	0.3493	8.24	11.74	10.44	11.69	0.5434	0.2149	0.0440	1.1483	74.12	74.62
8	18.6	59.1	70.69	60.51	0.2089	0.3397	0.5973	0.3540	8.39	11.63	11.10	10.18	0.5447	0.2282	0.0438	1.1487	72.46	72.99
9	18.5	60.8	71.65	63.34	0.2020	0.3309	0.6074	0.3600	8.18	11.16	12.30	8.31	0.5425	0.2393	0.0424	1.1479	70.86	71.42

SL	V-1	V-2	VM-1	VM-2	WO-1	WO-2	U-1	U-2	V'-1	V'-2	WO'-1	WO'-2	RHOVM-1	RHOVM-2	EPST-1	EPST-2	PCT TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN
1	233.5	498.0	227.2	330.5	53.8	372.6	449.7	463.1	456.5	342.7	-395.9	-90.5	16.91	25.51	2.051	5.095	0.0500
2	248.0	490.2	241.3	324.8	57.5	367.2	467.0	475.9	475.3	342.5	-409.5	-108.8	17.98	25.14	0.834	4.126	0.1000
3	250.7	483.0	243.8	322.1	58.4	359.9	483.8	488.7	490.3	346.9	-425.3	-128.8	18.17	25.00	-0.232	3.235	0.1499
4	250.6	465.0	242.9	317.5	61.7	339.8	532.1	527.2	529.4	368.7	-470.4	-187.4	18.09	24.79	-3.258	0.593	0.3000
5	250.8	436.8	240.3	293.2	72.0	323.7	592.5	578.4	573.3	388.4	-520.5	-254.7	17.90	23.01	-6.897	-2.864	0.5000
6	246.3	412.5	233.8	254.2	77.5	324.9	648.8	629.6	617.3	396.8	-571.4	-304.7	17.43	19.95	-9.689	-6.066	0.7000
7	239.8	392.4	227.3	209.1	76.5	332.0	688.1	668.0	652.5	395.8	-611.6	-336.0	16.96	16.38	-10.539	-7.669	0.8500
8	232.2	385.2	220.1	197.0	73.9	331.1	700.5	680.9	664.1	401.5	-626.6	-349.8	16.42	15.43	-10.325	-7.883	0.9000
9	224.6	375.7	213.0	182.9	71.3	328.2	712.4	693.7	675.5	408.7	-641.1	-365.5	15.88	14.32	-9.861	-7.933	0.9500
		WC1/A1	WC1/A1						T02/T01	P02/P01	EFF-AD	EFF-P					
		LBM/SEC	KG/SEC								ROTOR	ROTOR					
		SQFT	SQM								%	%					
		17.22	84.04						1.0489	1.1577	87.52	87.76					

# AIRFOIL AERODYNAMIC SUMMARY PRINT

50 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 104 SPEED CODE 50 POINT NO 7

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	157.2	123.1	112.2	119.9	110.1	27.8	137.76	151.24	0.1372	0.1489
2	155.8	123.9	111.3	120.1	108.9	30.1	136.92	151.83	0.1253	0.1336
3	154.3	125.6	111.1	121.6	107.1	31.2	136.83	154.04	0.1128	0.1190
4	150.3	123.7	110.2	119.0	102.2	33.7	136.41	151.19	0.0754	0.0803
5	142.3	117.7	102.6	111.5	98.6	37.7	127.59	141.93	0.0302	0.0358
6	134.8	112.2	90.4	104.9	100.0	40.1	112.49	133.26	-0.0147	-0.0104
7	128.6	108.6	76.8	100.5	103.1	41.0	95.49	127.25	-0.0566	-0.0557
8	126.5	107.3	73.1	99.3	103.2	40.7	90.87	125.45	-0.0731	-0.0749
9	123.7	102.7	69.0	94.8	102.6	39.4	85.79	119.61	-0.0903	-0.0959

SL	B-1	B-2	M-1	M-2	INCS	INCM	DEV	TURN	D-FAC	OMEGA-B	LOSS-P	PO2/P	PO/PO	TO/TO	%EFF-A	%EFF-P
	DEGREE	DEGREE			DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	P01	STAGE	STAGE	TOT-STG	TOT-STG
1	44.4	13.0	0.4608	0.3579	-5.85	-3.18	21.18	31.31	0.3978	0.1004	0.0350	0.9864	1.1542	1.0476	87.97	88.21
2	44.3	14.1	0.4564	0.3602	-4.35	-1.36	19.95	30.22	0.3834	0.0804	0.0285	0.9893	1.1532	1.0474	87.67	87.93
3	43.9	14.4	0.4521	0.3654	-4.07	-0.79	18.54	29.51	0.3643	0.0500	0.0181	0.9935	1.1572	1.0474	90.02	90.24
4	42.8	15.8	0.4400	0.3599	-5.37	-1.26	16.08	26.97	0.3537	0.0390	0.0149	0.9951	1.1583	1.0468	91.81	91.97
5	43.8	18.7	0.4158	0.3421	-7.94	-2.90	14.09	25.16	0.3544	0.0351	0.0142	0.9960	1.1523	1.0460	89.90	90.10
6	47.9	20.9	0.3926	0.3255	-10.29	-4.47	12.80	26.98	0.3709	0.0376	0.0160	0.9962	1.1474	1.0487	82.32	82.66
7	53.3	22.2	0.3731	0.3139	-12.44	-6.17	14.44	31.13	0.3909	0.0283	0.0125	0.9974	1.1450	1.0539	73.26	73.77
8	54.7	22.3	0.3665	0.3097	-14.19	-7.82	15.34	32.39	0.3984	0.0307	0.0138	0.9972	1.1458	1.0556	71.42	71.96
9	56.0	22.5	0.3580	0.2961	-15.80	-9.33	16.65	33.51	0.4275	0.0609	0.0277	0.9948	1.1421	1.0567	68.23	68.83

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	PCT TE	EPSI-1	EPSI-2
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	SPAN	DEGREE	DEGREE
1	515.8	403.8	358.1	393.4	361.2	91.3	28.21	30.98	0.0550	7.860	8.530
2	511.0	406.4	365.3	394.2	357.3	98.9	28.04	31.10	0.1083	7.177	7.654
3	506.4	412.0	364.5	399.1	351.5	102.4	28.02	31.55	0.1610	6.463	6.819
4	493.1	405.9	361.6	390.5	335.3	110.7	27.94	30.97	0.3151	4.320	4.601
5	466.9	366.2	336.7	365.8	323.4	123.6	26.13	29.07	0.5165	1.733	2.054
6	442.3	368.3	296.5	344.0	328.2	131.5	23.04	27.29	0.7145	-0.844	-0.596
7	422.0	356.2	252.1	329.9	338.4	134.5	19.56	26.06	0.8603	-3.244	-3.191
8	414.9	351.9	239.9	325.7	338.5	133.4	18.61	25.69	0.9080	-4.190	-4.294
9	405.7	336.9	226.5	311.1	336.6	129.1	17.57	24.50	0.9548	-5.171	-5.494
	NCORR	WCORR	WCORR	WCORR			TO/TO	PO2/PO1	PO/PO	EFF-AD	EFF-P
	INLET	INLET	INLET	INLET			STAGE	STAGE	STAGE	STAGE	STAGE
	RPM	LBM/SEC	KG/SEC								
	6096.10	44.67	20.26				1.0489	0.9947	1.1515	84.28	84.59

## AIRFOIL AERODYNAMIC SUMMARY PRINT

50 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 106 SPEED CODE 50 POINT NO 1

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2		
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN		
1	76.2	155.0	75.1	108.4	12.7	110.8	137.0	141.1	145.2	112.6	-124.3	-30.3	89.09	133.81	0.0365	0.0877		
2	81.0	152.7	79.9	106.7	13.5	109.2	142.2	145.0	151.5	112.6	-128.7	-35.8	94.86	132.01	0.0159	0.0696		
3	82.7	149.9	81.5	105.7	13.8	106.3	147.3	148.9	156.5	114.0	-133.6	-42.6	96.75	131.06	-0.0020	0.0532		
4	84.0	142.3	82.7	103.8	14.7	97.4	162.1	160.6	169.0	121.5	-147.3	-63.2	98.16	129.34	-0.0507	0.0072		
5	84.5	132.6	82.6	97.5	17.9	89.9	180.5	176.2	182.3	130.2	-162.6	-86.3	97.99	121.95	-0.1067	-0.0491		
6	83.6	123.4	81.2	89.7	19.9	84.7	197.6	191.8	195.4	139.6	-177.7	-107.0	96.37	112.41	-0.1501	-0.0992		
7	82.0	116.7	79.5	81.1	19.9	83.9	209.6	203.5	205.7	144.5	-189.6	-119.5	94.46	101.51	-0.1711	-0.1292		
8	79.7	112.5	77.3	75.0	19.4	83.9	213.4	207.4	208.8	144.5	-194.0	-123.5	91.75	93.72	-0.1738	-0.1357		
9	77.5	105.7	75.1	65.6	18.8	82.9	217.0	211.3	211.9	144.2	-198.1	-128.4	89.17	81.80	-0.1708	-0.1383		
SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PO2/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	9.6	45.6	58.80	15.60	0.2250	0.4541	0.4289	0.3297	1.57	7.85	13.08	43.20	0.4338	0.0145	0.0042	1.1761	98.90	98.94
2	9.6	45.7	58.13	18.55	0.2395	0.4469	0.4477	0.3295	2.75	8.88	11.09	39.58	0.4555	0.0525	0.0153	1.1703	95.75	95.85
3	9.6	45.2	58.60	21.96	0.2443	0.4386	0.4625	0.3335	3.84	9.82	11.14	36.63	0.4597	0.0605	0.0176	1.1669	94.78	94.88
4	10.1	43.2	60.71	31.31	0.2484	0.4160	0.4995	0.3551	5.86	11.53	11.27	29.39	0.4432	0.0520	0.0147	1.1595	94.59	94.71
5	12.3	42.6	63.11	41.44	0.2498	0.3870	0.5391	0.3801	6.14	11.03	10.29	21.66	0.4241	0.0567	0.0150	1.1482	92.85	92.99
6	13.8	43.2	65.49	49.90	0.2470	0.3597	0.5776	0.4070	6.18	10.42	8.85	15.58	0.4076	0.0786	0.0188	1.1380	88.55	88.76
7	14.1	45.8	67.28	55.72	0.2423	0.3394	0.6078	0.4201	5.84	9.34	8.17	11.56	0.4160	0.1253	0.0272	1.1320	80.93	81.25
8	14.1	48.1	68.31	58.62	0.2354	0.3267	0.6169	0.4197	6.01	9.25	9.21	9.69	0.4265	0.1504	0.0306	1.1291	77.08	77.46
9	14.1	51.5	69.26	62.85	0.2288	0.3065	0.6259	0.4180	5.79	8.77	11.81	6.41	0.4370	0.1793	0.0323	1.1224	72.32	72.76
SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE	
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN	
1	249.9	508.7	246.5	355.8	41.6	363.6	449.4	462.8	476.5	369.4	-407.9	-99.3	18.25	27.41	2.092	5.023	0.0500	
2	265.9	501.0	262.2	350.2	44.4	358.3	466.7	475.6	497.1	369.3	-422.3	-117.4	19.43	27.04	0.912	3.988	0.1000	
3	271.2	491.8	267.4	346.9	45.2	348.6	483.4	488.4	513.3	374.0	-438.2	-139.8	19.81	26.84	-0.114	3.047	0.1499	
4	275.7	467.0	271.4	340.5	48.4	319.6	531.8	526.8	554.4	398.6	-483.4	-207.3	20.10	26.49	-2.904	0.413	0.3000	
5	277.2	434.9	270.9	319.8	58.8	294.8	592.1	578.0	598.2	427.1	-533.3	-283.2	20.07	24.98	-6.113	-2.811	0.5000	
6	274.2	404.8	266.3	294.2	65.3	278.0	648.4	629.2	641.0	458.1	-583.1	-351.2	19.74	23.02	-8.597	-5.684	0.7000	
7	269.0	382.9	260.9	266.1	65.4	275.4	687.6	667.6	674.7	474.0	-622.2	-392.2	19.35	20.79	-9.804	-7.405	0.8500	
8	261.4	369.1	253.6	246.1	63.6	275.1	700.0	680.4	685.1	474.1	-636.4	-405.3	18.79	19.19	-9.960	-7.772	0.9000	
9	254.2	346.9	246.5	215.2	61.8	272.0	711.9	693.2	695.3	473.0	-650.1	-421.2	18.26	16.75	-9.786	-7.925	0.9500	
	WC1/A1	WC1/A1							T02/T01	P02/P01	EFF-AD	EFF-P						
	LBM/SEC	KG/SEC									ROTOR	ROTOR						
	SQFT	SQM									%	%						
	19.28	94.07							1.0450	1.1490	90.01	90.19						

# AIRFOIL AERODYNAMIC SUMMARY PRINT

50 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 106 SPEED CODE 50 POINT NO 1

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	163.3	146.2	122.9	142.7	107.5	32.1	150.01	175.01	0.1345	0.1468
2	161.9	147.4	122.2	143.4	106.3	33.8	149.24	176.38	0.1200	0.1295
3	160.0	148.5	121.8	144.2	103.7	35.5	148.92	177.70	0.1049	0.1129
4	153.8	143.2	120.1	137.5	96.1	40.2	147.49	169.94	0.0611	0.0691
5	144.4	135.6	113.1	127.9	89.8	44.9	139.48	158.44	0.0099	0.0191
6	134.9	127.9	104.1	119.8	85.8	44.8	128.81	148.34	-0.0360	-0.0292
7	127.8	121.8	94.8	112.6	85.6	46.5	117.28	139.03	-0.0687	-0.0681
8	123.6	119.3	89.0	110.1	85.8	45.8	109.94	135.77	-0.0803	-0.0827
9	117.3	113.3	80.9	104.3	85.0	44.2	99.73	128.34	-0.0932	-0.0993

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	XEFF-A TOT-STG	XEFF-P TOT-STG
1	41.0	12.6	0.4793	0.4273	-9.17	-6.50	20.78	28.39	0.2632	0.1172	0.0410	0.9830	1.1553	1.0480	87.82	88.06
2	40.9	13.2	0.4752	0.4308	-7.72	-4.74	19.11	27.69	0.2461	0.0865	0.0308	0.9876	1.1551	1.0480	87.77	88.03
3	40.3	13.8	0.4693	0.4342	-7.62	-4.35	17.97	26.53	0.2231	0.0494	0.0179	0.9931	1.1581	1.0474	90.38	90.58
4	38.6	16.3	0.4510	0.4187	-9.57	-5.45	16.52	22.33	0.2063	0.0484	0.0184	0.9938	1.1513	1.0455	90.42	90.60
5	38.4	19.3	0.4228	0.3961	-13.33	-8.29	14.77	19.09	0.1897	0.0523	0.0211	0.9940	1.1404	1.0433	88.42	88.64
6	39.5	20.5	0.3942	0.3731	-18.69	-12.87	12.40	18.98	0.1911	0.0668	0.0286	0.9932	1.1300	1.0426	83.47	83.75
7	42.1	22.4	0.3724	0.3545	-23.65	-17.38	14.70	19.66	0.1977	0.0886	0.0392	0.9919	1.1229	1.0446	75.50	75.91
8	43.9	22.6	0.3597	0.3468	-24.92	-18.54	15.68	21.32	0.1988	0.0794	0.0356	0.9932	1.1216	1.0458	72.83	73.27
9	46.4	23.0	0.3410	0.3290	-25.42	-18.94	17.10	23.45	0.2115	0.0848	0.0385	0.9934	1.1151	1.0464	68.20	68.68

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	535.7	479.8	403.4	468.1	352.6	105.3	30.72	35.84	0.0550	7.708	8.412
2	531.3	483.5	400.9	470.7	348.6	110.8	30.57	36.12	0.1083	6.873	7.419
3	524.9	487.1	399.5	473.0	340.4	116.4	30.50	36.40	0.1610	6.011	6.469
4	504.7	469.9	394.1	451.0	315.3	131.8	30.21	34.80	0.3151	3.498	3.958
5	473.8	444.8	371.0	419.7	294.7	147.5	28.57	32.45	0.5165	0.566	1.097
6	442.6	419.6	341.6	393.0	281.4	147.0	26.38	30.38	0.7145	-2.064	-1.672
7	419.2	399.6	311.1	369.3	281.0	152.5	24.02	28.48	0.8603	-3.938	-3.904
8	405.5	391.3	292.0	361.3	281.4	150.4	22.52	27.81	0.9080	-4.600	-4.741
9	385.0	371.8	265.3	342.3	279.0	145.1	20.42	26.28	0.9548	-5.342	-5.688
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1 STAGE	PO/PO1 STAGE	EFF-AD STAGE	EFF-P STAGE
	6092.00	50.00	22.67				1.0450	0.9923	1.1401	84.92	85.18

## APPENDIX D

### Overall and Blade Element Performance Tabulations With Rotor Trailing Edge Probes Installed Design Stagger

#### POINT IDENTIFICATION

115 - 10 - 4	Performance calculated using stator
115 - 10 - 5	trailing edge (Station 5) total
115 - 10 - 6	pressure and temperature.
115 - 10 - 14	Performance calculated using rotor
115 - 10 - 15	trailing edge (Station 4) total
115 - 10 - 16	pressure and stator trailing edge
	(Station 5) total pressure and
	temperature.
115 - 10 - 24	Performance calculated using rotor
115 - 10 - 25	trailing edge (Station 4) total
115 - 10 - 26	pressure and temperature and stator
	trailing edge (Station 5) total
	pressure.

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COMPUTER TABLE SYMBOL TRANSLATION

## AIRFOIL AERODYNAMIC SUMMARY PRINT

XX	PERCENT DESIGN SPEED (ROTOR PERFORMANCE)								AIRFOIL AERODYNAMIC SUMMARY PRINT								RUN NO XXX		SPEED CODE XX		POINT NO X	
SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	U-1 M/SEC	U-2 M/SEC	V'-1 M/SEC	V'-2 M/SEC	VO'-1 M/SEC	VO'-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN						
1																						
2																						
3	V <sub>RL</sub>		V <sub>m,RL</sub>		V <sub>0,RL</sub>		U <sub>RL</sub>		V' <sub>RL</sub>		V' <sub>0,RL</sub>		ρV <sub>m,RL</sub>		ε <sub>RL</sub>							
4		V <sub>RL</sub>		V <sub>m,RL</sub>		V <sub>0,RL</sub>	U <sub>RL</sub>		V' <sub>RL</sub>		V' <sub>0,RL</sub>		ρV <sub>m,RL</sub>		ε <sub>RL</sub>							
5																						
6																						
7																						
8																						
9																						
SL	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	M-1	M-2	M'-1	M'-2	INCS DEGREE	INCH DEGREE	DEV DEGREE	TURN DEGREE	D FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	ηEFF-A TOTAL	ηEFF-P TOTAL				
1																						
2																						
3	β <sub>RL</sub>		β' <sub>RL</sub>		M <sub>RL</sub>		M' <sub>RL</sub>		1 <sub>ss</sub>		δ°		D		$\frac{\omega \cos \beta'}{20}$ RTE		η <sub>ad</sub>					
4		β <sub>RL</sub>		β' <sub>RL</sub>		M <sub>RL</sub>		M' <sub>RL</sub>		1 <sub>m</sub>		Δβ'		ω		$\frac{P_T, RTE}{P_T, RLE}$		η <sub>p</sub>				
5																						
6																						
7																		RTE RLE				
8																						
9																						
SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	EPSI-1 DEGREE	EPSI-2 DEGREE	PCT TE SPAN					
1																						
2																						
3	V <sub>RL</sub>		V <sub>m,RL</sub>		V <sub>0,RL</sub>		U <sub>RL</sub>		V' <sub>RL</sub>		V' <sub>0,RL</sub>		ρV <sub>m,RL</sub>		ε <sub>RL</sub>		% span					
4		V <sub>RL</sub>		V <sub>m,RL</sub>		V <sub>0,RL</sub>	U <sub>RL</sub>		V' <sub>RL</sub>		V' <sub>0,RL</sub>		ρV <sub>m,RL</sub>		ε <sub>RL</sub>							
5																	RTE					
6																						
7																						
8																						
9																						
	WCI/A1 LBM/SEC	WCI/A1 KG/SEC	WCI/A1 SQM	WCI/A1 SQM	WCI/A1 SQM	WCI/A1 SQM	WCI/A1 SQM	WCI/A1 SQM	WCI/A1 SQM	WCI/A1 SQM	WCI/A1 SQM	WCI/A1 SQM	WCI/A1 SQM	WCI/A1 SQM	WCI/A1 SQM	WCI/A1 SQM	WCI/A1 SQM	WCI/A1 SQM				
	TO2/TO1	PO2/PO1	EFF-AD ROTOR %	EFF-P ROTOR %	EFF-AD ROTOR %	EFF-P ROTOR %	EFF-AD ROTOR %	EFF-P ROTOR %	EFF-AD ROTOR %	EFF-P ROTOR %	EFF-AD ROTOR %	EFF-P ROTOR %	EFF-AD ROTOR %	EFF-P ROTOR %	EFF-AD ROTOR %	EFF-P ROTOR %	EFF-AD ROTOR %					
	Y <sub>T, RTE</sub>	P <sub>T, RTE</sub>	η <sub>ad</sub>	η <sub>p</sub>	Y <sub>T, RTE</sub>	P <sub>T, RTE</sub>	η <sub>ad</sub>	η <sub>p</sub>	Y <sub>T, RTE</sub>	P												



COMPUTER TABLE SYMBOL TRANSLATION

AIRFOIL AERODYNAMIC SUMMARY PRINT																
PERCENT DESIGN SPEED (STATOR PERFORMANCE)						RUN NO XXX SPEED CODE XX POINT NO X										
SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN						
1																
2																
3	VSLE	VSTE	VM,SLE	VM,STE	VO,SLE	VO,STE	PVM,SLE	PVM,STE	ESLE	ESTE						
4																
5																
6																
7																
8																
9																
SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCH DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	POZ/ POI	PO/PO STAGE	TO/TO STAGE	KEFF-A TOT-STG	KEFF-P TOT-STG
1																
2	$\beta$ SLE	$\beta$ STE	MSLE	M STE	$i_{ss}$	$i_m$	$\delta^\circ$	$\Delta\beta$	D	$\frac{\omega \cos \beta}{20}$ STE		$\frac{P_{T,STE}}{P_{T,RLE}}$	$\frac{P_{T,STE}}{P_{T,RLE}}$	$\frac{T_{T,STE}}{T_{T,RLE}}$	$\frac{S_{T,STE}}{S_{T,RLE}}$	$\frac{S_{T,STE}}{S_{T,RLE}}$
3																
4																
5																
6																
7																
8																
9																
SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE					
1																
2																
3	VSLE	VSTE	VM,SLE	VM,STE	VO,SLE	VO,STE	PVM,SLE	PVM,STE	% span STE	ESLE	ESTE					
4																
5																
6																
7																
8																
9																
	NCORR INLET RPM $\frac{N}{\sqrt{M}}$	WCORR INLET LBM/SEC $\frac{W}{\sqrt{M}}$	WCORR INLET KG/SEC $\frac{W}{\sqrt{M}}$						TO/TO STAGE	POZ/POI	PO/PO STAGE	EFF-AD STAGE %	EFF-P STAGE %			
	RLE	RLE	RLE						$\frac{T_{T,STE}}{T_{T,RLE}}$	$\frac{P_{T,STE}}{P_{T,RLE}}$	$\frac{P_{T,STE}}{P_{T,RLE}}$	$\eta_{ad}$	$\eta_p$			
									$\frac{S_{T,STE}}{S_{T,RLE}}$			$\frac{S_{T,STE}}{S_{T,RLE}}$	$\frac{S_{T,STE}}{S_{T,RLE}}$			

## AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 115 SPEED CODE 10 POINT NO 4

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	164.3	299.6	162.9	199.2	21.4	223.8	274.3	282.5	300.9	207.6	-252.9	-58.7	171.53	253.18	0.0370	0.0904
2	173.6	294.4	171.6	192.5	26.4	222.8	284.8	290.3	310.2	204.0	-258.4	-67.5	181.29	247.19	0.0169	0.0748
3	176.5	289.1	174.0	187.4	29.3	220.2	295.0	298.1	317.6	202.9	-265.7	-77.9	183.78	242.86	-0.0001	0.0606
4	180.6	279.9	177.1	181.6	34.9	213.0	324.5	321.5	339.5	211.6	-289.6	-108.5	186.73	241.60	-0.0456	0.0202
5	181.9	272.5	176.6	170.9	43.2	212.2	361.4	352.8	363.9	221.2	-318.2	-140.5	186.04	233.37	-0.0997	-0.0334
6	180.0	263.6	173.5	157.5	48.2	211.5	395.7	384.0	388.4	233.6	-347.5	-172.6	183.03	219.24	-0.1460	-0.0869
7	176.2	256.9	169.5	143.6	48.0	212.9	419.7	407.4	408.5	241.8	-371.6	-194.5	179.08	201.05	-0.1731	-0.1244
8	173.1	250.8	166.5	131.6	47.1	213.5	427.2	415.3	415.0	240.8	-380.1	-291.7	175.80	183.72	-0.1789	-0.1338
9	170.3	237.7	163.9	105.8	46.3	212.8	434.5	423.1	421.4	235.4	-388.2	-210.3	172.87	146.88	-0.1762	-0.1380

SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCH	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PO2/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	7.5	48.4	57.15	16.44	0.4945	0.8621	0.9053	0.5975	-0.07	6.20	13.92	40.71	0.5168	0.0886	0.0256	1.8139	93.73	94.23
2	8.7	49.2	56.38	19.36	0.5240	0.8453	0.9361	0.5857	1.00	7.13	11.90	37.02	0.5402	0.1242	0.0361	1.7778	90.63	91.36
3	9.6	49.6	56.76	22.61	0.5331	0.8283	0.9594	0.5814	2.01	7.99	11.79	34.16	0.5514	0.1331	0.0386	1.7638	89.51	90.31
4	11.2	49.5	58.56	30.86	0.5461	0.7982	1.0268	0.6034	3.71	9.38	10.81	27.70	0.5497	0.1225	0.0349	1.7646	89.28	90.10
5	13.7	51.1	60.98	39.33	0.5502	0.7719	1.1012	0.6267	4.01	8.90	8.18	21.65	0.5533	0.1240	0.0338	1.7872	88.21	89.13
6	15.6	53.2	63.49	47.45	0.5444	0.7408	1.1744	0.6564	4.18	8.43	6.39	16.05	0.5519	0.1452	0.0366	1.8005	85.33	86.48
7	15.8	55.9	65.52	53.41	0.5321	0.7147	1.2337	0.6727	4.08	7.58	5.86	12.11	0.5613	0.1897	0.0436	1.8131	80.53	82.08
8	15.8	58.2	66.39	56.77	0.5222	0.6942	1.2521	0.6667	4.09	7.33	7.35	9.63	0.5731	0.2173	0.0465	1.8060	77.70	79.46
9	15.8	63.5	67.16	63.20	0.5134	0.6533	1.2702	0.6470	3.69	6.67	12.16	3.96	0.5946	0.2627	0.0467	1.7633	72.86	74.92

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN
1	539.1	982.8	534.6	653.4	70.1	734.2	900.0	926.7	987.1	681.2	-829.8	-192.6	35.13	51.85	2.120	5.179	0.0500
2	569.7	965.9	563.1	631.4	86.7	730.9	934.5	952.4	1017.7	669.2	-847.8	-221.5	37.13	50.63	0.971	4.284	0.1000
3	579.0	948.6	571.0	614.8	96.3	722.4	968.1	978.0	1042.1	665.8	-871.8	-255.7	37.64	49.74	-0.008	3.475	0.1499
4	592.4	918.3	581.2	595.8	114.6	698.8	1064.8	1054.9	1113.8	694.2	-950.2	-356.1	38.24	49.48	-2.613	1.160	0.3000
5	596.7	894.0	579.6	560.6	141.7	696.4	1185.7	1157.4	1194.1	725.8	-1044.0	-461.1	38.10	47.80	-5.715	-1.912	0.5000
6	590.7	865.0	569.1	516.6	158.3	693.8	1298.3	1260.0	1274.2	766.4	-1140.0	-566.1	37.49	44.90	-8.365	-4.981	0.7000
7	578.1	842.8	556.2	471.2	157.5	698.7	1376.9	1336.8	1340.2	793.3	-1219.4	-638.1	36.68	41.18	-9.917	-7.125	0.8500
8	567.9	822.9	546.4	431.7	154.6	700.6	1401.8	1362.5	1361.6	790.2	-1247.2	-661.9	36.00	37.63	-10.248	-7.666	0.9000
9	558.8	779.8	537.8	347.2	151.9	698.2	1425.5	1388.1	1382.5	772.3	-1273.6	-689.9	35.41	30.08	-10.097	-7.906	0.9500

WCI/A1	WCI/A1	T02/T01	P02/PO1	EFF-AD	EFF-P
LBM/SEC	KG/SEC			ROTOR	ROTOR
SQFT	SQM			X	X
37.02	180.67	1.2098	1.7866	85.90	86.99

# AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 115 SPEED CODE 10 POINT NO 4

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	312.4	219.7	224.8	212.2	216.9	56.9	276.57	300.60	0.1381	0.1490
2	309.2	220.5	220.6	211.4	216.8	62.9	272.96	300.90	0.1272	0.1335
3	305.7	223.4	217.4	213.4	215.0	66.0	270.42	305.66	0.1154	0.1184
4	300.1	226.3	214.4	212.5	210.1	77.9	271.79	308.35	0.0779	0.0763
5	295.0	226.2	205.3	208.8	211.8	87.0	266.27	305.27	0.0285	0.0255
6	287.1	222.6	192.0	203.2	213.4	90.8	253.92	297.74	-0.0205	-0.0243
7	280.6	219.9	178.2	200.8	216.7	89.5	237.48	292.36	-0.0587	-0.0647
8	275.7	216.4	168.7	200.0	218.0	82.7	224.64	289.52	-0.0727	-0.0797
9	263.0	202.9	146.8	189.9	218.2	71.4	194.15	271.96	-0.0889	-0.0972

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	P02/ P01	PO/PO STAGE	TO/TO STAGE	XEFF-A TOT-STG	XEFF-P TOT-STG
1	43.9	15.0	0.9048	0.6119	-6.33	-3.66	23.12	28.89	0.4734	0.1366	0.0473	0.9438	1.7108	1.1977	83.81	84.98
2	44.4	16.5	0.8946	0.6145	-4.21	-1.23	22.44	27.88	0.4626	0.1183	0.0415	0.9521	1.6921	1.1970	82.27	83.52
3	44.6	17.2	0.8830	0.6231	-3.34	-0.06	21.34	27.45	0.4457	0.0853	0.0305	0.9661	1.7039	1.1966	83.63	84.81
4	44.4	20.1	0.8642	0.6318	-3.78	0.33	20.37	24.26	0.4165	0.0542	0.0202	0.9791	1.7278	1.1973	85.69	86.74
5	45.9	22.6	0.8445	0.6293	-5.89	-0.85	18.03	23.27	0.4121	0.0601	0.0237	0.9776	1.7467	1.2043	84.52	85.68
6	48.0	24.1	0.8149	0.6161	-10.16	-4.34	15.96	23.95	0.4203	0.0751	0.0313	0.9734	1.7516	1.2134	81.34	82.74
7	50.6	24.0	0.7886	0.6041	-15.18	-8.92	16.28	26.54	0.4360	0.0877	0.0383	0.9703	1.7585	1.2283	76.62	78.38
8	52.2	22.5	0.7709	0.5922	-16.61	-10.23	15.54	29.78	0.4589	0.0957	0.0430	0.9685	1.7566	1.2350	74.26	76.20
9	56.1	20.6	0.7298	0.5516	-15.79	-9.32	14.72	35.45	0.5098	0.0955	0.0441	0.9713	1.7171	1.2408	69.31	71.52

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	1024.9	721.0	737.5	696.4	711.7	186.8	56.64	61.57	0.0550	7.915	8.535
2	1014.6	723.6	723.7	693.5	711.2	206.3	55.90	61.63	0.1083	7.290	7.649
3	1003.1	732.9	713.2	700.1	705.4	216.6	55.39	62.60	0.1610	6.614	6.782
4	984.8	742.6	703.4	697.2	689.2	255.7	55.66	63.15	0.3151	4.466	4.370
5	967.9	742.1	673.7	685.0	695.1	285.4	54.53	62.52	0.5165	1.636	1.463
6	941.8	730.3	629.8	666.8	700.2	297.9	52.00	60.98	0.7145	-1.177	-1.394
7	920.5	721.4	584.7	659.0	711.0	293.6	48.64	59.88	0.8603	-3.363	-3.705
8	904.6	710.1	553.7	656.2	715.3	271.4	46.01	59.30	0.9080	-4.163	-4.567
9	862.8	665.8	481.6	623.2	715.9	234.3	39.76	55.70	0.9548	-5.094	-5.571
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	P02/P01	PO/PO STAGE	EFF-AD STAGE %	EFF-P STAGE %
	12198.90	96.03	43.55				1.2098	0.9709	1.7346	81.18	82.57

## AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 115 SPEED CODE 10 POINT NO 5

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	162.4	298.3	161.2	198.7	19.5	222.5	274.3	282.5	301.6	207.6	-254.9	-60.0	170.30	253.31	0.0367	0.0904
2	171.6	293.1	169.7	191.0	25.6	222.3	284.9	290.3	309.9	202.7	-259.3	-68.0	179.88	245.92	0.0164	0.0748
3	174.4	288.1	172.0	185.8	28.9	220.3	295.1	298.1	317.0	201.4	-266.2	-77.9	182.25	241.39	-0.0008	0.0608
4	178.5	279.6	175.2	180.2	34.3	213.8	324.6	321.6	339.0	210.0	-290.2	-107.8	185.32	240.41	-0.0465	0.0206
5	179.7	272.5	174.6	169.0	42.5	213.8	361.4	352.8	363.6	218.8	-318.9	-139.0	184.56	231.36	-0.1011	-0.0332
6	177.9	263.9	171.2	154.2	48.1	214.2	395.8	384.1	387.6	229.4	-347.7	-169.9	181.35	215.14	-0.1467	-0.0868
7	174.1	257.4	167.4	139.7	47.8	216.2	419.7	407.5	407.9	236.9	-372.0	-191.3	177.45	196.01	-0.1715	-0.1233
8	171.0	252.6	164.4	129.7	46.8	216.7	427.3	415.3	414.5	237.2	-380.5	-198.6	174.16	181.83	-0.1762	-0.1324
9	168.2	241.4	161.8	107.4	46.0	216.2	434.5	423.1	420.9	233.2	-388.6	-207.0	171.19	149.78	-0.1735	-0.1370

SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	P02/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	P01	TOTAL	TOTAL
1	6.9	48.3	57.62	16.82	0.4883	0.8578	0.9069	0.5970	0.40	6.68	14.30	40.81	0.5184	0.0936	0.0271	1.8124	93.36	93.89
2	8.6	49.4	56.76	19.62	0.5176	0.8410	0.9345	0.5817	1.38	7.51	12.17	37.14	0.5440	0.1279	0.0371	1.7768	90.38	91.12
3	9.5	49.9	57.12	22.77	0.5264	0.8249	0.9567	0.5767	2.37	8.35	11.95	34.35	0.5558	0.1358	0.0393	1.7648	89.35	90.16
4	11.1	49.9	58.90	30.87	0.5396	0.7968	1.0247	0.5984	4.05	9.72	10.83	28.03	0.5551	0.1260	0.0359	1.7694	89.05	89.89
5	13.7	51.6	61.32	39.34	0.5434	0.7711	1.0995	0.6193	4.35	9.24	8.19	21.98	0.5616	0.1304	0.0356	1.7943	87.72	88.69
6	15.7	54.1	63.80	47.62	0.5375	0.7402	1.1712	0.6436	4.49	8.74	6.56	16.18	0.5645	0.1543	0.0387	1.8097	84.63	85.85
7	15.9	57.0	65.81	53.72	0.5254	0.7147	1.2311	0.6577	4.36	7.87	6.17	12.09	0.5759	0.2009	0.0459	1.8249	79.75	81.38
8	15.9	59.0	66.67	56.73	0.5155	0.6980	1.2497	0.6556	4.37	7.61	7.31	9.94	0.5846	0.2239	0.0479	1.8238	77.46	79.27
9	15.9	63.5	67.43	62.49	0.5067	0.6627	1.2680	0.6402	3.96	6.94	11.46	4.94	0.6028	0.2635	0.0480	1.7906	73.35	75.42

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN
1	532.8	978.8	528.9	652.1	64.0	730.0	900.1	926.9	989.4	681.2	-836.2	-196.9	34.88	51.88	2.103	5.179	0.0500
2	563.1	961.7	556.8	626.6	84.0	729.5	934.6	952.6	1016.7	665.1	-850.6	-223.1	36.84	50.37	0.942	4.288	0.1000
3	572.2	945.4	564.3	609.5	94.7	722.7	968.2	978.2	1039.9	660.9	-873.5	-255.5	37.33	49.44	-0.043	3.486	0.1499
4	585.7	917.5	574.8	591.4	112.7	701.5	1065.0	1055.1	1112.3	689.0	-952.3	-353.6	37.95	49.24	-2.665	1.183	0.3000
5	589.7	894.1	572.9	554.5	139.5	701.4	1185.9	1157.6	1193.0	718.0	-1046.5	-456.2	37.80	47.39	-5.795	-1.901	0.5000
6	583.6	865.7	561.9	505.8	157.8	702.6	1298.6	1260.2	1271.6	752.8	-1140.7	-557.5	37.14	44.06	-8.403	-4.975	0.7000
7	571.2	844.5	549.2	458.2	156.7	709.4	1377.1	1337.0	1338.3	777.2	-1220.4	-627.7	36.34	40.14	-9.829	-7.062	0.8500
8	561.0	828.7	539.5	425.6	153.7	711.1	1402.0	1362.7	1359.9	778.3	-1248.3	-651.7	35.67	37.24	-10.098	-7.586	0.9000
9	551.8	791.9	530.8	352.2	150.9	709.2	1425.7	1388.3	1380.9	765.0	-1274.8	-679.1	35.06	30.68	-9.941	-7.848	0.9500
	WC1/A1	WC1/A1						T02/T01	P02/P01	EFF-AD	EFF-P						
	LBM/SEC	KG/SEC								ROTOR	ROTOR						
	SQFT	SQM								%	%						
	36.71	179.13								1.2125	1.7943	85.49	86.62				

# AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 115 SPEED CODE 10 POINT NO 5

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	310.4	212.5	223.2	205.4	215.7	54.7	275.94	296.14	0.1387	0.1493
2	307.1	212.8	218.0	204.1	216.3	60.4	271.13	295.64	0.1283	0.1341
3	303.8	215.4	214.7	205.9	215.1	63.3	268.41	299.96	0.1170	0.1192
4	298.9	218.8	212.0	205.6	210.8	74.9	270.07	303.09	0.0809	0.0779
5	294.3	220.3	202.8	203.5	213.3	84.2	264.06	302.50	0.0325	0.0280
6	286.8	217.8	188.5	199.0	216.1	88.3	250.28	296.41	-0.0175	-0.0222
7	280.8	215.9	174.4	197.4	220.1	87.3	233.14	291.97	-0.0577	-0.0639
8	276.8	213.2	166.3	197.2	221.3	81.0	222.21	290.24	-0.0724	-0.0796
9	266.1	201.4	147.3	188.7	221.7	70.3	195.92	274.94	-0.0891	-0.0974

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	%EFF-A TOT-STG	%EFF-P TOT-STG
1	43.9	14.9	0.8978	0.5902	-6.29	-3.62	23.02	29.04	0.4946	0.1232	0.0427	0.9498	1.7208	1.1982	84.59	85.71
2	44.7	16.5	0.8873	0.5913	-3.93	-0.95	22.35	28.24	0.4866	0.1074	0.0377	0.9570	1.7002	1.1974	82.92	84.14
3	45.0	17.1	0.8765	0.5991	-2.96	0.31	21.24	27.92	0.4720	0.0784	0.0280	0.9691	1.7104	1.1971	84.03	85.18
4	44.8	20.0	0.8596	0.6088	-3.35	0.76	20.26	24.80	0.4442	0.0513	0.0191	0.9804	1.7344	1.1987	85.71	86.77
5	46.4	22.5	0.8410	0.6111	-5.33	-0.29	17.89	23.97	0.4364	0.0496	0.0196	0.9816	1.7602	1.2067	84.79	85.94
6	48.9	23.9	0.8126	0.6009	-9.29	-3.47	15.82	24.96	0.4444	0.0598	0.0250	0.9789	1.7700	1.2169	81.67	83.07
7	51.6	23.8	0.7875	0.5911	-14.15	-7.89	16.11	27.75	0.4599	0.0699	0.0306	0.9764	1.7803	1.2331	76.80	78.59
8	53.1	22.3	0.7726	0.5816	-15.78	-9.40	15.40	30.75	0.4804	0.0766	0.0344	0.9748	1.7819	1.2400	74.72	76.67
9	56.4	20.4	0.7378	0.5460	-15.47	-8.99	14.54	35.96	0.5295	0.0827	0.0382	0.9747	1.7491	1.2462	70.31	72.53

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	1018.3	697.3	732.3	673.8	707.6	179.4	56.52	60.65	0.0550	7.948	8.554
2	1007.6	698.2	715.3	669.5	709.7	198.2	55.53	60.55	0.1083	7.353	7.684
3	996.9	706.7	704.3	675.5	705.6	207.7	54.97	61.43	0.1610	6.704	6.831
4	980.8	717.8	695.5	674.4	691.6	245.8	55.31	62.07	0.3151	4.634	4.466
5	965.6	722.7	665.2	667.8	699.8	276.4	54.08	61.95	0.5165	1.864	1.607
6	940.9	714.5	618.5	653.0	709.0	289.8	51.26	60.71	0.7145	-1.005	-1.274
7	921.3	708.2	572.1	647.8	722.1	286.4	47.75	59.80	0.8603	-3.305	-3.661
8	908.2	699.6	545.5	647.1	726.2	265.7	45.51	59.44	0.9080	-4.150	-4.559
9	873.2	660.8	483.2	619.3	727.3	230.6	40.13	56.31	0.9548	-5.104	-5.583
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1	PO/PO STAGE	EFF-AD STAGE	EFF-P STAGE
	12201.00	95.21	43.18				1.2125	0.9751	1.7497	81.50	82.89

## AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 115 SPEED CODE 10 POINT NO 6

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2		
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN		
1	155.7	295.8	154.4	194.1	19.4	223.2	274.4	282.5	298.1	203.0	-255.0	-59.3	165.19	248.66	0.0364	0.0906		
2	164.9	290.5	163.0	187.0	24.5	222.2	284.9	290.4	307.2	199.1	-260.3	-68.1	174.94	242.01	0.0157	0.0754		
3	167.5	285.8	165.2	181.7	27.7	220.6	295.1	298.2	314.3	197.6	-267.4	-77.6	177.25	237.25	-0.0019	0.0618		
4	171.1	279.0	167.8	176.2	33.4	216.4	324.6	321.6	336.2	205.2	-291.3	-105.2	179.74	236.07	-0.0492	0.0220		
5	172.1	273.3	167.0	162.5	41.5	219.8	361.5	352.9	360.9	210.0	-319.9	-133.1	178.79	223.25	-0.1051	-0.0321		
6	170.3	265.9	163.8	146.4	46.5	222.0	395.8	384.1	385.8	218.4	-349.3	-162.1	175.65	205.13	-0.1495	-0.0862		
7	166.6	261.7	160.1	132.0	46.0	226.0	419.8	407.5	406.6	224.4	-373.8	-181.5	171.80	186.17	-0.1725	-0.1226		
8	163.5	257.0	157.1	120.5	45.1	227.0	427.3	415.4	413.3	223.6	-382.2	-188.4	168.49	169.81	-0.1756	-0.1312		
9	160.7	250.0	154.5	105.0	44.3	226.9	434.6	423.2	419.8	222.6	-390.3	-196.3	165.51	147.79	-0.1714	-0.1358		
SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	P02/ P01	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL		TOTAL	TOTAL
1	7.1	49.0	58.73	17.01	0.4672	0.8493	0.8948	0.5828	1.51	7.79	14.49	41.73	0.5293	0.1097	0.0317	1.8058	92.37	92.98
2	8.6	50.0	57.91	20.04	0.4962	0.8321	0.9245	0.5702	2.53	8.66	12.59	37.87	0.5530	0.1421	0.0411	1.7715	89.47	90.28
3	9.5	50.6	58.28	23.15	0.5047	0.8167	0.9468	0.5648	3.52	9.50	12.33	35.12	0.5659	0.1501	0.0434	1.7618	88.41	89.29
4	11.3	50.8	60.07	30.84	0.5160	0.7935	1.0136	0.5836	5.21	10.89	10.80	29.22	0.5693	0.1390	0.0396	1.7780	88.20	89.11
5	14.0	53.4	62.46	39.22	0.5192	0.7707	1.0887	0.5922	5.49	10.38	8.07	23.24	0.5897	0.1551	0.0424	1.8120	85.90	87.02
6	15.9	56.4	64.91	47.74	0.5133	0.7424	1.1631	0.6098	5.60	9.85	6.69	17.17	0.6003	0.1863	0.0466	1.8374	82.25	83.69
7	16.0	59.6	66.85	53.83	0.5015	0.7228	1.2244	0.6198	5.41	8.91	6.28	13.02	0.6159	0.2337	0.0532	1.8671	77.64	79.50
8	16.0	61.9	67.69	57.27	0.4918	0.7060	1.2433	0.6144	5.39	8.63	7.85	10.42	0.6275	0.2585	0.0545	1.8663	75.31	77.36
9	16.0	65.1	68.43	61.75	0.4831	0.6833	1.2619	0.6083	4.96	7.95	10.72	6.68	0.6384	0.2857	0.0534	1.8539	72.71	74.95
SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE	
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN	
1	510.7	970.6	506.7	637.0	63.6	732.4	900.2	927.0	907.1	666.1	-836.6	-194.6	33.83	50.93	2.084	5.193	0.0500	
2	541.0	953.0	534.9	613.7	80.5	729.1	934.7	952.7	970.9	653.1	-854.2	-223.5	35.83	49.57	0.900	4.321	0.1000	
3	549.7	937.7	542.2	596.3	90.9	723.7	968.3	978.3	1031.4	648.4	-877.4	-254.6	36.30	48.59	-0.110	3.538	0.1499	
4	561.5	915.5	550.7	578.0	109.5	709.9	1065.1	1055.2	1102.9	673.3	-955.6	-345.3	36.81	48.35	-2.818	1.260	0.3000	
5	564.8	896.7	548.1	533.0	136.3	721.1	1186.0	1157.7	1184.2	689.1	-1049.7	-436.7	36.62	45.72	-6.024	-1.841	0.5000	
6	558.7	872.5	537.4	480.4	152.6	728.4	1298.7	1260.3	1265.9	716.7	-1146.1	-531.9	35.97	42.01	-8.567	-4.937	0.7000	
7	546.5	858.7	525.3	433.0	150.8	741.6	1377.3	1337.2	1334.2	736.4	-1226.4	-595.6	35.19	38.13	-9.883	-7.023	0.8500	
8	536.4	843.2	515.6	395.4	148.0	744.7	1402.1	1362.8	1356.0	733.8	-1254.1	-618.1	34.51	34.78	-10.062	-7.518	0.9000	
9	527.3	820.4	506.9	344.6	145.2	744.5	1425.9	1388.4	1377.3	730.3	-1280.7	-643.9	33.90	30.27	-9.823	-7.779	0.9500	
	WC1/A1		WC1/A1						T02/T01	P02/P01	EFF-AD	EFF-P						
	LBM/SEC		KG/SEC								ROTOR	ROTOR						
	SQFT		SQM								%	%						
	35.55		173.48						1.2209	1.8140	83.90	85.19						

# AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 115 SPEED CODE 10 POINT NO 6

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	305.3	194.4	215.4	188.1	216.3	49.4	269.52	280.53	0.1400	0.1500
2	301.9	194.2	210.7	186.3	216.2	54.7	265.14	278.94	0.1310	0.1357
3	298.7	196.8	207.1	188.3	215.3	57.1	262.08	283.25	0.1212	0.1217
4	295.4	200.9	204.6	189.1	213.1	68.0	263.80	287.17	0.0892	0.0830
5	292.6	204.9	194.0	189.7	219.0	77.6	255.16	289.74	0.0438	0.0355
6	286.9	207.2	179.6	189.7	223.8	83.1	240.35	290.61	-0.0082	-0.0152
7	283.8	208.7	166.2	191.5	230.0	83.2	224.04	291.03	-0.0523	-0.0592
8	279.6	207.5	156.5	192.3	231.8	77.8	210.73	290.88	-0.0690	-0.0763
9	273.2	200.6	143.1	188.4	232.7	68.8	192.41	282.72	-0.0877	-0.0960

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	%EFF-A TOT-STG	%EFF-P TOT-STG
1	45.0	14.7	0.8806	0.5368	-5.18	-2.51	22.61	30.35	0.5526	0.1098	0.0381	0.9565	1.7277	1.1991	84.91	86.02
2	45.7	16.3	0.8694	0.5362	-2.96	0.02	22.23	29.33	0.5464	0.0973	0.0342	0.9621	1.7050	1.1983	83.02	84.24
3	46.0	16.8	0.8591	0.5437	-1.90	1.38	21.03	29.20	0.5333	0.0708	0.0254	0.9729	1.7138	1.1985	83.81	84.98
4	46.1	19.8	0.8467	0.5551	-2.01	2.11	20.03	26.38	0.5096	0.0554	0.0207	0.9792	1.7392	1.2020	84.77	85.91
5	48.5	22.2	0.8324	0.5639	-3.31	1.74	17.67	26.22	0.5019	0.0541	0.0214	0.9802	1.7729	1.2139	83.06	84.36
6	51.2	23.7	0.8086	0.5670	-6.94	-1.12	15.54	27.60	0.5003	0.0478	0.0200	0.9832	1.8018	1.2277	80.39	81.94
7	54.1	23.5	0.7911	0.5667	-11.62	-5.36	15.74	30.64	0.5128	0.0600	0.0263	0.9796	1.8259	1.2481	75.60	77.55
8	56.0	22.0	0.7755	0.5610	-12.90	-6.52	15.10	33.93	0.5288	0.0568	0.0256	0.9812	1.8326	1.2562	73.68	75.80
9	58.4	20.1	0.7534	0.5397	-13.46	-6.99	14.18	38.32	0.5662	0.0634	0.0294	0.9800	1.8189	1.2639	70.55	72.90

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	1001.8	637.9	706.9	617.0	709.8	161.9	55.20	57.46	0.0550	8.022	8.594
2	990.4	637.0	691.3	611.2	709.2	179.4	54.30	57.13	0.1083	7.508	7.773
3	980.2	645.6	679.6	617.8	706.3	187.4	53.68	58.01	0.1610	6.943	6.971
4	969.4	659.3	671.4	620.3	699.2	223.2	54.03	58.82	0.3151	5.110	4.757
5	960.0	672.3	636.5	622.3	718.6	254.6	52.26	59.34	0.5165	2.507	2.035
6	941.4	679.7	589.2	622.6	734.2	272.7	49.23	59.52	0.7145	-0.468	-0.868
7	931.0	684.9	545.4	628.2	754.6	272.9	45.88	59.60	0.8603	-2.996	-3.392
8	917.5	680.7	513.4	631.0	760.4	255.3	43.16	59.58	0.9080	-3.955	-4.374
9	896.3	658.2	469.6	618.2	763.5	225.9	39.41	57.90	0.9548	-5.027	-5.501
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1	PO/PO STAGE	EFF-AD STAGE %	EFF-P STAGE %
	12202.10	92.21	41.82				1.2209	0.9776	1.7735	80.45	81.95

## AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 115 SPEED CODE 10 POINT NO 14

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2		
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN		
1	165.1	296.7	163.7	194.6	21.4	223.9	274.3	282.5	301.2	203.2	-252.9	-58.6	172.16	257.84	0.0363	0.0902		
2	174.4	289.8	172.4	185.1	26.5	222.9	284.8	290.3	310.5	197.0	-258.3	-67.4	181.90	247.45	0.0158	0.0747		
3	177.2	284.6	174.8	180.2	29.4	220.3	295.0	298.1	318.0	196.2	-265.6	-77.8	184.35	243.03	-0.0013	0.0609		
4	181.3	279.6	177.9	180.6	35.0	213.4	324.5	321.5	339.8	210.5	-289.5	-108.1	187.31	251.02	-0.0492	0.0199		
5	182.3	271.4	177.1	167.9	43.2	213.2	361.4	352.8	364.1	218.4	-318.1	-139.6	186.38	239.22	-0.1098	-0.0365		
6	179.7	261.2	173.1	151.5	48.2	212.7	395.7	384.0	388.2	228.7	-347.5	-171.3	182.76	219.23	-0.1612	-0.0934		
7	175.1	253.7	168.4	136.0	47.9	214.2	419.7	407.4	408.1	236.3	-371.8	-193.3	178.22	197.35	-0.1912	-0.1331		
8	171.7	244.6	165.2	117.9	47.0	214.3	427.2	415.3	414.6	232.9	-380.2	-200.9	174.70	170.36	-0.1978	-0.1415		
9	168.8	231.5	162.3	91.1	46.2	212.8	434.5	423.1	420.9	229.2	-388.3	-210.3	171.62	131.09	-0.1947	-0.1421		
SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	P02/ P01	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL		TOTAL	TOTAL
1	7.4	49.0	57.02	16.76	0.4970	0.8525	0.9067	0.5840	-0.20	6.07	14.24	40.25	0.5321	0.0059	0.0017	1.8765	99.57	99.61
2	8.7	50.3	56.25	20.02	0.5265	0.8303	0.9374	0.5645	0.87	7.00	12.57	36.23	0.5631	0.0595	0.0172	1.8294	95.54	95.90
3	9.6	50.8	56.64	23.38	0.5355	0.8136	0.9606	0.5611	1.89	7.87	12.56	33.26	0.5731	0.0698	0.0201	1.8164	94.54	94.98
4	11.1	49.8	58.45	30.90	0.5486	0.7972	1.0280	0.6001	3.60	9.27	10.85	27.55	0.5539	0.0392	0.0112	1.8424	96.60	96.88
5	13.7	51.7	60.94	39.63	0.5517	0.7684	1.1019	0.6182	3.97	8.86	8.47	21.31	0.5628	0.0568	0.0154	1.8601	94.62	95.07
6	15.6	54.4	63.60	48.36	0.5433	0.7326	1.1739	0.6415	4.29	8.53	7.30	15.24	0.5671	0.0970	0.0240	1.8638	90.23	91.04
7	16.0	57.5	65.74	54.76	0.5286	0.7043	1.2322	0.6561	4.30	7.80	7.21	10.98	0.5771	0.1498	0.0333	1.8739	84.71	85.99
8	16.0	61.1	66.65	59.51	0.5179	0.6752	1.2503	0.6429	4.35	7.59	10.10	7.14	0.5933	0.1868	0.0370	1.8523	80.88	82.45
9	16.0	66.8	67.43	66.50	0.5085	0.6350	1.2681	0.6286	3.96	6.94	15.47	0.93	0.6086	0.2288	0.0360	1.8097	76.46	78.32
SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE	
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN	
1	541.7	973.3	537.1	638.5	70.3	734.6	900.0	926.7	988.3	666.8	-829.6	-192.1	35.26	52.81	2.078	5.170	0.0500	
2	572.3	950.7	565.6	607.5	87.0	731.4	934.5	952.4	1018.9	646.4	-847.5	-221.1	37.25	50.68	0.906	4.282	0.1000	
3	581.5	933.7	573.4	591.1	96.6	722.8	968.1	978.0	1043.2	643.9	-871.5	-255.2	37.76	49.77	-0.077	3.489	0.1499	
4	595.0	917.3	583.8	592.5	114.9	700.3	1064.8	1054.9	1114.9	690.6	-949.9	-354.7	38.36	51.41	-2.818	1.139	0.3000	
5	598.1	890.5	581.1	551.0	141.9	699.5	1185.7	1157.4	1194.7	716.4	-1043.8	-457.9	38.17	48.99	-6.294	-2.094	0.5000	
6	589.5	856.9	567.9	497.1	158.1	697.9	1298.3	1260.0	1273.8	750.3	-1140.2	-562.0	37.43	44.90	-9.238	-5.349	0.7000	
7	574.5	832.3	552.5	446.1	157.2	702.7	1376.9	1336.8	1339.0	775.3	-1219.7	-634.1	36.50	40.42	-10.954	-7.626	0.8500	
8	563.4	802.6	541.9	386.7	154.2	703.3	1401.8	1362.5	1360.1	764.3	-1247.5	-659.2	35.78	34.89	-11.333	-8.105	0.9000	
9	553.7	759.5	532.6	299.0	151.5	698.2	1425.5	1388.1	1380.9	751.9	-1274.0	-689.9	35.15	26.85	-11.155	-8.142	0.9500	
	WC1/A1		WC1/A1						TO2/TO1	P02/P01	EFF-AD	EFF-P						
	LBM/SEC		KG/SEC								ROTOR	ROTOR						
			SQM								%	%						
	37.02		180.67						1.2098	1.8513	91.65	92.34						



# AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 115 SPEED CODE 10 POINT NO 14

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	307.8	220.4	218.2	212.9	217.0	57.0	281.19	301.20	0.1387	0.1496
2	302.9	221.2	211.4	212.0	216.9	63.0	273.69	301.47	0.1279	0.1345
3	299.4	224.0	208.2	214.0	215.1	66.1	271.01	306.18	0.1159	0.1195
4	297.5	226.8	210.3	213.0	210.4	78.0	280.17	308.75	0.0801	0.0793
5	291.3	226.3	199.1	208.8	212.6	87.1	271.12	305.33	0.0353	0.0326
6	281.4	222.1	182.4	202.7	214.3	90.7	252.75	297.27	-0.0119	-0.0154
7	274.0	219.0	166.7	199.9	217.4	89.3	232.57	291.48	-0.0506	-0.0564
8	267.0	215.4	153.6	198.9	218.5	82.5	213.75	288.48	-0.0656	-0.0721
9	254.2	201.6	130.5	188.6	218.2	71.2	180.67	270.56	-0.0842	-0.0915

SL	B-1	B-2	M-1	M-2	INCS	INCM	DEV	TURN	D-FAC	OMEGA-B	LOSS-P	PO2/P01	PO/PO	TO/TO	XEFF-A	XEFF-P
	DEGREE	DEGREE			DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL		STAGE	STAGE	TOT-STG	TOT-STG
1	44.8	15.0	0.8893	0.6139	-5.46	-2.79	23.10	29.78	0.4633	0.2189	0.0758	0.9121	1.7108	1.1977	83.81	84.98
2	45.6	16.5	0.8734	0.6164	-2.98	0.00	22.42	29.12	0.4492	0.1913	0.0672	0.9251	1.6922	1.1970	82.28	83.53
3	45.9	17.1	0.8619	0.6248	-2.08	1.19	21.33	28.71	0.4320	0.1613	0.0576	0.9380	1.7039	1.1966	83.64	84.81
4	45.0	20.1	0.8554	0.6332	-3.18	0.93	20.37	24.87	0.4098	0.1631	0.0608	0.9380	1.7278	1.1973	85.69	86.74
5	46.9	22.6	0.8321	0.6296	-4.91	0.14	18.04	24.24	0.4049	0.1657	0.0653	0.9394	1.7467	1.2043	84.53	85.68
6	49.6	24.1	0.7965	0.6147	-8.59	-2.77	15.99	25.49	0.4114	0.1732	0.0722	0.9405	1.7516	1.2134	81.34	82.74
7	52.5	24.1	0.7675	0.6015	-13.24	-6.98	16.32	28.44	0.4278	0.1889	0.0825	0.9383	1.7585	1.2283	76.61	78.38
8	54.9	22.5	0.7438	0.5891	-13.98	-7.61	15.58	32.36	0.4504	0.1965	0.0882	0.9380	1.7566	1.2351	74.25	76.19
9	59.1	20.7	0.7031	0.5477	-12.76	-6.29	14.77	38.42	0.5024	0.2083	0.0960	0.9401	1.7170	1.2408	69.29	71.51

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	PCT TE	EPSI-1	EPSI-2
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	SPAN	DEGREE	DEGREE
1	1009.7	723.2	715.9	698.6	712.1	187.1	57.59	61.69	0.0550	7.945	8.572
2	993.8	725.7	693.7	695.6	711.6	206.7	56.05	61.74	0.1083	7.328	7.705
3	982.2	734.8	683.0	702.0	705.8	217.0	55.50	62.71	0.1610	6.641	6.844
4	976.1	744.2	690.0	698.7	690.3	256.1	57.38	63.24	0.3151	4.591	4.541
5	955.6	742.4	653.3	685.2	697.5	285.6	55.53	62.53	0.5165	2.020	1.865
6	923.3	728.7	598.4	665.2	703.1	297.7	51.76	60.88	0.7145	-0.602	-0.884
7	899.0	718.5	546.9	656.0	713.4	293.0	47.63	59.70	0.8603	-2.899	-3.229
8	876.2	706.6	503.8	652.7	716.8	270.6	43.78	59.08	0.9080	-3.758	-4.133
9	834.0	661.4	428.2	618.8	715.8	233.4	37.00	55.41	0.9548	-4.823	-5.240
	NCORR	WCORR	WCORR	WCORR			TO/TO	PO2/PO1	PO/PO	EFF-AD	EFF-P
	INLET	INLET	INLET	INLET			STAGE	STAGE	STAGE	STAGE	STAGE
	RPM	LBM/SEC	KG/SEC						%	%	
	12198.90	96.03	43.55				1.2098	0.9369	1.7346	81.18	82.57

## AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 115 SPEED CODE 10 POINT NO 15

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	163.3	296.5	162.1	195.7	19.6	222.7	274.3	282.5	302.0	204.6	-254.8	-59.8	171.07	259.78	0.0357	0.0901
2	172.5	289.6	170.6	185.3	25.7	222.5	284.9	290.3	310.3	197.3	-259.2	-67.8	180.60	248.07	0.0148	0.0746
3	175.3	284.3	172.9	179.6	29.0	220.5	295.1	298.1	317.3	195.6	-266.1	-77.7	182.92	242.53	-0.0027	0.0608
4	179.4	279.4	176.0	179.2	34.4	214.3	324.6	321.6	339.4	208.8	-290.2	-107.2	185.95	249.22	-0.0509	0.0201
5	180.2	272.2	175.1	167.0	42.6	214.9	361.4	352.8	363.8	216.6	-318.9	-137.9	184.93	238.09	-0.1121	-0.0365
6	177.5	262.3	170.9	149.3	48.0	215.7	395.8	384.1	387.5	225.1	-347.7	-168.4	181.05	216.20	-0.1641	-0.0941
7	172.8	254.8	166.1	132.5	47.6	217.6	419.7	407.5	407.5	231.5	-372.1	-189.9	176.45	192.34	-0.1931	-0.1336
8	169.4	246.1	162.8	114.8	46.7	217.7	427.3	415.3	414.0	228.5	-380.6	-197.6	172.88	166.07	-0.1989	-0.1416
9	166.4	234.0	160.0	89.6	45.8	216.2	434.5	423.1	420.3	225.5	-388.7	-207.0	169.74	129.13	-0.1948	-0.1421

SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	P02/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	P01	TOTAL	TOTAL
1	6.9	48.7	57.46	17.01	0.4913	0.8517	0.9085	0.5879	0.24	6.52	14.49	40.45	0.5291	0.0072	0.0021	1.8781	99.48	99.52
2	8.6	50.3	56.61	20.12	0.5205	0.8295	0.9360	0.5651	1.23	7.36	12.67	36.49	0.5623	0.0589	0.0370	1.8317	95.59	95.95
3	9.5	50.9	56.98	23.42	0.5292	0.8126	0.9582	0.5591	2.22	8.21	12.60	33.56	0.5750	0.0715	0.0206	1.8181	94.43	94.87
4	11.1	50.1	58.78	30.89	0.5423	0.7960	1.0260	0.5950	3.93	9.60	10.84	27.89	0.5598	0.0468	0.0133	1.8440	95.97	96.30
5	13.7	52.0	61.28	39.45	0.5450	0.7699	1.1002	0.6127	4.31	9.20	8.29	21.83	0.5696	0.0637	0.0174	1.8675	94.03	94.53
6	15.8	55.2	63.92	48.28	0.5363	0.7349	1.1707	0.6305	4.61	8.86	7.23	15.64	0.5787	0.1069	0.0265	1.8741	89.38	90.27
7	16.1	58.6	66.06	54.99	0.5214	0.7060	1.2294	0.6416	4.62	8.12	7.44	11.07	0.5917	0.1630	0.0361	1.8847	83.63	85.02
8	16.1	62.1	66.97	59.76	0.5106	0.6782	1.2476	0.6297	4.67	7.91	10.34	7.21	0.6068	0.1980	0.0389	1.8653	80.08	81.73
9	16.1	67.4	67.75	66.52	0.5011	0.6409	1.2657	0.6178	4.27	7.26	15.49	1.22	0.6202	0.2368	0.0372	1.8269	76.07	77.99

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN
1	535.9	972.7	532.0	642.1	64.2	730.7	900.1	926.9	990.9	671.4	-835.9	-196.2	35.04	53.21	2.047	5.162	0.0500
2	566.1	950.1	559.8	607.9	84.3	730.2	934.6	952.6	1018.0	647.3	-850.3	-222.4	36.99	50.81	0.847	4.273	0.1000
3	575.1	932.9	567.2	589.1	95.1	723.3	968.2	978.2	1041.2	641.9	-873.2	-254.8	37.46	49.67	-0.155	3.485	0.1499
4	588.5	916.7	577.6	588.0	113.0	703.3	1065.0	1055.1	1113.5	685.2	-952.0	-351.8	38.08	51.04	-2.917	1.153	0.3000
5	591.3	893.0	574.5	548.0	139.7	705.1	1185.9	1157.6	1193.6	710.7	-1046.3	-452.5	37.87	48.76	-6.425	-2.093	0.5000
6	582.3	860.7	560.6	490.0	157.6	707.7	1298.6	1260.2	1271.2	738.5	-1141.0	-552.5	37.08	44.28	-9.401	-5.394	0.7000
7	567.1	835.9	545.1	434.6	156.3	714.0	1377.1	1337.0	1337.0	759.6	-1220.8	-623.0	36.14	39.39	-11.063	-7.657	0.8500
8	555.8	807.6	534.3	376.7	153.2	714.4	1402.0	1362.7	1358.3	749.8	-1248.8	-648.3	35.41	34.01	-11.396	-8.112	0.9000
9	546.0	767.7	524.9	294.0	150.4	709.2	1425.7	1388.3	1379.1	740.0	-1275.3	-679.1	34.76	26.45	-11.162	-8.140	0.9500

WCI/A1	WCI/A1	T02/T01	P02/P01	EFF-AD	EFF-P
LBM/SEC	KG/SEC			ROTOR	ROTOR
SQFT	SQM			%	%
36.71	179.13	1.2125	1.8581	91.07	91.81

# AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 115 SPEED CODE 10 POINT NO 15

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	306.9	213.3	218.2	206.1	215.8	54.8	282.21	296.87	0.1395	0.1502
2	302.0	213.6	210.5	204.8	216.5	60.5	273.52	296.35	0.1295	0.1355
3	298.3	216.1	206.6	206.5	215.2	63.4	269.78	300.59	0.1181	0.1209
4	296.5	219.3	208.1	206.1	211.2	75.1	277.90	303.57	0.0837	0.0814
5	291.3	220.4	197.5	203.6	214.2	84.3	269.57	302.59	0.0398	0.0356
6	282.0	217.3	180.0	198.5	217.1	88.3	249.85	295.90	-0.0077	-0.0122
7	274.7	214.9	163.2	196.5	220.9	87.1	227.99	291.00	-0.0480	-0.0541
8	268.1	212.1	150.4	196.1	221.9	80.7	209.66	289.08	-0.0639	-0.0706
9	256.1	199.9	128.4	187.3	221.6	70.0	178.24	273.39	-0.0834	-0.0907

SL	B-1	B-2	M-1	M-2	INCS	INCM	DEV	TURN	D-FAC	OMEGA-B	LOSS-P	PO2/	PO/PO	TO/TO	XEFF-A	XEFF-P
	DEGREE	DEGREE			DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	STAGE	STAGE	TOT-STG	TOT-STG
1	44.6	14.9	0.8863	0.5925	-5.62	-2.95	23.00	29.73	0.4864	0.2097	0.0726	0.9161	1.7208	1.1982	84.59	85.71
2	45.7	16.4	0.8703	0.5935	-2.90	0.08	22.33	29.28	0.4756	0.1846	0.0648	0.9281	1.7003	1.1974	82.93	84.15
3	46.1	17.0	0.8582	0.6011	-1.84	1.44	21.22	29.07	0.4600	0.1548	0.0554	0.9409	1.7104	1.1971	84.03	85.19
4	45.4	20.0	0.8516	0.6103	-2.75	1.36	20.26	25.41	0.4379	0.1557	0.0581	0.9412	1.7344	1.1987	85.72	86.78
5	47.3	22.5	0.8313	0.6114	-4.46	0.58	17.90	24.83	0.4309	0.1550	0.0612	0.9433	1.7603	1.2067	84.79	85.95
6	50.3	24.0	0.7970	0.5994	-7.84	-2.02	15.85	26.38	0.4380	0.1585	0.0662	0.9454	1.7700	1.2169	81.67	83.07
7	53.5	23.9	0.7679	0.5882	-12.23	-5.97	16.16	29.62	0.4537	0.1685	0.0737	0.9449	1.7803	1.2331	76.80	78.58
8	55.8	22.4	0.7452	0.5783	-13.01	-6.64	15.43	33.48	0.4734	0.1716	0.0771	0.9456	1.7819	1.2400	74.71	76.66
9	59.9	20.5	0.7073	0.5418	-11.98	-5.50	14.60	39.39	0.5211	0.1759	0.0812	0.9489	1.7490	1.2462	70.30	72.52

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	PCT TE	EPSI-1	EPSI-2
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	SPAN	DEGREE	DEGREE
1	1007.0	699.8	715.9	676.3	708.1	179.8	57.80	60.80	0.0550	7.993	8.603
2	990.8	700.7	690.8	671.9	710.3	198.6	56.02	60.69	0.1083	7.419	7.764
3	978.8	708.9	677.7	677.7	706.2	208.1	55.25	61.56	0.1610	6.769	6.925
4	972.9	719.5	682.7	676.1	693.1	246.3	56.92	62.17	0.3151	4.796	4.666
5	955.9	723.1	648.1	668.1	702.6	276.6	55.21	61.97	0.5165	2.282	2.038
6	925.3	712.8	590.5	651.4	712.5	289.6	51.17	60.60	0.7145	-0.439	-0.700
7	901.3	705.1	535.6	644.6	724.9	285.7	46.69	59.60	0.8603	-2.753	-3.102
8	879.5	695.8	493.5	643.4	728.0	264.9	42.94	59.21	0.9080	-3.664	-4.045
9	840.4	656.0	421.4	614.5	727.1	229.7	36.50	55.99	0.9548	-4.781	-5.197
	NCORR	WCORR	WCORR				TO/TO	PO2/PO1	PO/PO	EFF-AD	EFF-P
	INLET	INLET	INLET				STAGE		STAGE	STAGE	STAGE
	RPM	LBM/SEC	KG/SEC							%	%
	12201.00	95.21	43.18				1.2125	0.9416	1.7497	81.51	82.89

### 100 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 115 SPEED CODE 10 POINT NO 16

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	156.8	295.4	155.5	193.3	19.5	223.4	274.4	282.5	298.6	202.1	-254.9	-59.1	166.11	256.66	0.0352	0.0902
2	165.9	288.4	164.1	183.4	24.6	222.5	284.9	290.4	307.6	195.6	-260.2	-67.9	175.79	245.64	0.0137	0.0749
3	168.5	283.2	166.2	177.3	27.8	220.8	295.1	298.2	314.8	193.4	-267.3	-77.3	178.04	239.45	-0.0043	0.0614
4	172.1	280.2	168.8	177.0	33.5	217.2	324.6	321.6	336.5	205.5	-291.2	-104.4	180.48	246.10	-0.0544	0.0207
5	172.6	274.1	167.6	161.8	41.6	221.2	361.5	352.9	361.1	208.6	-319.9	-131.6	179.19	230.21	-0.1176	-0.0368
6	169.8	265.6	163.3	142.7	46.4	224.1	395.8	384.1	385.7	214.4	-349.4	-160.0	175.27	206.15	-0.1695	-0.0957
7	165.2	258.3	158.7	122.0	45.8	227.6	419.8	407.5	406.2	217.4	-373.9	-179.9	170.64	176.80	-0.1947	-0.1334
8	161.8	252.5	155.4	108.2	45.0	228.1	427.3	415.4	412.8	216.3	-382.4	-187.3	167.07	156.63	-0.1972	-0.1403
9	158.9	243.7	152.6	89.2	44.1	226.9	434.6	423.2	419.3	215.6	-390.5	-196.3	163.91	128.91	-0.1903	-0.1412

SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PO2/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	P01	TOTAL	TOTAL
1	7.1	49.2	58.54	17.02	0.4707	0.8480	0.8966	0.5801	1.32	7.60	14.50	41.52	0.5333	0.0243	0.0070	1.8695	98.30	98.44
2	8.5	50.5	57.74	20.33	0.4995	0.8252	0.9262	0.5597	2.36	8.49	12.88	37.41	0.5652	0.0752	0.0217	1.8242	94.45	94.90
3	9.5	51.3	58.11	23.59	0.5078	0.8084	0.9484	0.5521	3.36	9.34	12.77	34.52	0.5803	0.0896	0.0258	1.8117	93.12	93.67
4	11.2	50.8	59.92	30.53	0.5190	0.7971	1.0151	0.5847	5.07	10.75	10.48	29.39	0.5698	0.0636	0.0182	1.8499	94.64	95.08
5	14.0	53.7	62.42	39.04	0.5208	0.7727	1.0894	0.5881	5.45	10.34	7.88	23.38	0.5959	0.0949	0.0260	1.8005	91.39	92.11
6	15.9	57.4	65.05	48.14	0.5118	0.7407	1.1625	0.5978	5.73	9.98	7.08	16.91	0.6144	0.1459	0.0363	1.8977	86.10	87.29
7	16.2	61.7	67.13	55.75	0.4971	0.7115	1.2226	0.5988	5.69	9.19	8.20	11.38	0.6361	0.2086	0.0453	1.9118	80.06	81.78
8	16.2	64.5	68.00	59.89	0.4866	0.6919	1.2412	0.5928	5.70	8.94	10.48	8.11	0.6467	0.2353	0.0461	1.9061	77.55	79.47
9	16.2	68.5	68.75	65.50	0.4772	0.6647	1.2596	0.5879	5.28	8.26	14.47	3.25	0.6548	0.2644	0.0433	1.8835	74.75	76.87

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN
1	514.3	969.3	510.4	634.2	63.9	733.1	900.2	927.0	979.7	663.1	-836.3	-193.9	34.02	52.57	2.019	5.167	0.0500
2	544.4	946.1	538.3	601.8	80.8	730.0	934.7	952.7	1009.4	641.7	-853.9	-222.6	36.00	50.31	0.787	4.290	0.1000
3	553.0	929.2	545.4	581.8	91.3	724.6	968.3	978.3	1032.8	634.7	-877.1	-253.7	36.46	49.04	-0.248	3.518	0.1499
4	564.6	919.3	553.8	580.8	109.8	712.6	1065.1	1055.2	1104.2	674.3	-955.3	-342.6	36.96	50.40	-3.115	1.187	0.3000
5	566.5	899.2	549.8	530.3	136.5	725.8	1186.0	1157.7	1184.8	684.3	-1049.5	-431.9	36.70	47.15	-6.739	-2.107	0.5060
6	557.2	871.6	535.9	468.1	152.4	735.2	1298.7	1260.3	1265.4	703.4	-1146.3	-525.0	35.90	42.22	-9.712	-5.485	0.7000
7	541.9	847.4	520.6	400.2	150.4	746.9	1377.3	1337.2	1332.8	713.1	-1226.9	-590.3	34.95	36.21	-11.154	-7.644	0.8500
8	530.9	828.3	510.0	355.0	147.5	748.4	1402.1	1362.8	1354.3	709.6	-1254.6	-614.5	34.22	32.08	-11.299	-8.039	0.9000
9	521.2	799.7	500.7	292.5	144.7	744.3	1425.9	1388.4	1375.6	707.4	-1281.2	-644.1	33.57	26.40	-10.902	-8.088	0.9500
	WC1/A1		WC1/A1						T02/T01	P02/P01	EFF-AD	EFF-P					
	LBM/SEC		KG/SEC								ROTOR	ROTOR					
	SQFT		SQM								%	%					
	35.55		173.48						1.2209	1.8719	88.74	89.69					

# AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 115 SPEED CODE 10 POINT NO 16

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	303.7	195.3	213.0	188.9	216.5	49.5	277.12	281.45	0.1410	0.1510
2	298.5	195.0	205.6	187.1	216.4	54.8	268.78	279.85	0.1326	0.1373
3	294.8	197.5	201.1	189.1	215.5	57.3	264.21	284.08	0.1229	0.1236
4	294.8	201.5	203.0	189.6	213.8	68.2	272.66	287.79	0.0930	0.0870
5	291.1	205.0	190.5	189.8	220.1	77.7	260.78	289.85	0.0527	0.0440
6	283.9	206.6	172.8	189.2	225.3	83.0	240.15	290.00	0.0038	-0.0035
7	277.1	207.6	153.1	190.4	231.0	83.0	213.67	289.83	-0.0423	-0.0485
8	272.6	206.2	142.5	191.0	232.4	77.6	198.86	289.50	-0.0609	-0.0672
9	264.3	199.0	125.5	186.8	232.6	68.6	174.82	280.97	-0.0825	-0.0895

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	XEFF-A TOT-STG	XEFF-P TOT-STG
1	45.4	14.7	0.8753	0.5393	-4.82	-2.16	22.79	30.73	0.5475	0.1955	0.0678	0.9231	1.7277	1.1991	84.91	86.02
2	46.4	16.3	0.8584	0.5386	-2.23	0.75	22.20	30.09	0.5388	0.1729	0.0608	0.9338	1.7051	1.1983	83.03	84.25
3	46.9	16.8	0.8461	0.5460	-1.02	2.26	21.01	30.10	0.5243	0.1423	0.0509	0.9468	1.7139	1.1985	83.81	84.98
4	46.5	19.8	0.8445	0.5568	-1.69	2.43	20.03	26.71	0.5063	0.1543	0.0577	0.9424	1.7393	1.2020	84.78	85.91
5	49.1	22.3	0.8273	0.5642	-2.63	2.41	17.68	26.88	0.4995	0.1512	0.0597	0.9450	1.7730	1.2139	83.06	84.36
6	52.5	23.7	0.7982	0.5654	-5.68	0.14	15.58	28.82	0.4982	0.1396	0.0584	0.9516	1.8018	1.2278	80.39	81.93
7	56.4	23.5	0.7698	0.5635	-9.30	-3.04	15.80	32.91	0.5068	0.1290	0.0566	0.9576	1.8260	1.2481	75.59	77.55
8	58.5	22.1	0.7535	0.5573	-10.40	-4.02	15.16	36.37	0.5245	0.1327	0.0597	0.9575	1.8326	1.2562	73.67	75.80
9	61.6	20.1	0.7263	0.5352	-10.23	-3.75	14.26	41.47	0.5607	0.1325	0.0613	0.9600	1.8189	1.2640	70.55	72.89

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	996.5	640.8	698.8	619.9	710.4	162.4	56.76	57.65	0.0550	8.080	8.650
2	979.4	639.8	674.7	614.0	710.0	179.8	55.05	57.32	0.1083	7.598	7.866
3	967.2	648.1	659.9	620.3	707.1	187.9	54.11	58.18	0.1610	7.039	7.082
4	967.3	661.2	666.1	622.2	701.4	223.7	55.84	58.94	0.3151	5.328	4.983
5	955.1	672.7	625.0	622.6	722.2	254.9	53.41	59.36	0.5165	3.017	2.520
6	931.4	677.9	566.8	620.7	739.1	272.5	43.19	59.39	0.7145	0.217	-0.199
7	909.2	681.3	502.2	624.5	758.0	272.2	43.76	59.36	0.8603	-2.425	-2.778
8	894.6	676.4	467.5	626.7	762.7	254.5	40.73	59.29	0.9080	-3.489	-3.849
9	867.2	653.0	411.8	613.0	763.2	225.0	35.80	57.55	0.9548	-4.724	-5.126

	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC	TO/TO STAGE	PO2/PO1	PO/PO STAGE	EFF-AD %	EFF-P %
	12202.10	92.21	41.82	1.2209	0.9474	1.7734	80.46	81.96

## AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 115 SPEED CODE 10 POINT NO 24

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	U-1 M/SEC	U-2 M/SEC	V'-1 M/SEC	V'-2 M/SEC	VO'-1 M/SEC	VO'-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	165.9	326.4	164.5	214.9	21.5	245.7	274.3	282.5	301.6	218.0	-252.8	-36.8	172.78	260.90	0.0359	0.0901
2	175.1	319.2	173.1	208.6	26.6	241.6	284.8	290.3	310.9	214.2	-258.2	-48.6	182.47	256.47	0.0145	0.0742
3	177.9	313.9	175.4	204.2	29.5	238.5	295.0	298.1	318.3	212.7	-265.6	-59.6	184.86	253.78	-0.0041	0.0597
4	181.7	308.7	178.3	196.4	35.1	238.2	324.5	321.5	340.0	213.3	-289.5	-83.3	187.55	250.83	-0.0547	0.0177
5	182.2	299.5	177.0	179.2	43.3	240.0	361.4	352.8	364.0	211.8	-318.1	-112.8	186.28	235.20	-0.1144	-0.0381
6	179.3	287.7	172.8	163.8	48.2	236.5	395.7	384.0	388.1	220.4	-347.6	-147.5	182.50	219.79	-0.1640	-0.0946
7	174.6	279.8	167.9	143.6	47.9	240.1	419.7	407.4	408.0	220.5	-371.8	-167.4	177.85	193.47	-0.1937	-0.1342
8	171.2	271.0	164.6	123.6	46.9	241.2	427.2	415.3	414.4	213.5	-380.3	-174.1	174.30	165.80	-0.1992	-0.1418
9	168.3	258.6	161.8	96.8	46.1	239.8	434.5	423.1	420.7	207.2	-388.4	-183.2	171.22	129.28	-0.1941	-0.1420

SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	P02/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	P01	TOTAL	TOTAL
1	7.4	48.8	56.89	9.72	0.4994	0.9429	0.9080	0.6299	-0.33	5.94	7.20	47.17	0.5057	0.1526	0.0454	1.8761	89.92	90.76
2	8.7	49.2	56.13	13.14	0.5288	0.9200	0.9387	0.6173	0.75	6.88	5.69	42.99	0.5273	0.1786	0.0536	1.8296	87.30	88.33
3	9.5	49.5	56.54	16.29	0.5376	0.9026	0.9618	0.6115	1.78	7.76	5.47	40.24	0.5402	0.1826	0.0551	1.8164	86.41	87.50
4	11.1	50.5	58.40	22.98	0.5497	0.8813	1.0286	0.6089	3.55	9.22	2.93	35.42	0.5701	0.1870	0.0571	1.8420	84.92	86.15
5	13.8	53.1	60.97	32.10	0.5513	0.8461	1.1016	0.5983	4.00	8.89	0.94	28.87	0.6063	0.2099	0.0628	1.8600	81.73	83.24
6	15.6	55.2	63.66	41.86	0.5422	0.8047	1.1734	0.6164	4.34	8.59	0.80	21.80	0.6108	0.2285	0.0634	1.8639	78.71	80.48
7	16.0	59.0	65.82	49.25	0.5271	0.7725	1.2315	0.6090	4.37	7.88	1.70	16.56	0.6393	0.2847	0.0717	1.8740	73.20	75.44
8	16.0	62.8	66.72	54.53	0.5163	0.7431	1.2496	0.5855	4.42	7.66	5.12	12.19	0.6642	0.3227	0.0731	1.8520	69.60	72.08
9	16.0	68.0	67.49	62.09	0.5069	0.7044	1.2675	0.5644	4.02	7.01	11.05	5.41	0.6853	0.3627	0.0670	1.8095	65.68	68.38

SL	V-1	V-2	VM-1	VM-2	WO-1	WO-2	U-1	U-2	V'-1	V'-2	WO'-1	WO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN
1	544.3	1071.0	539.7	705.2	70.5	806.1	900.0	926.7	989.6	715.4	-829.4	-120.7	35.39	53.44	2.056	5.163	0.0500
2	574.6	1047.3	568.0	684.3	87.2	792.8	934.5	952.4	1020.1	702.7	-847.3	-159.6	37.37	52.53	0.832	4.251	0.1000
3	583.7	1030.1	575.6	669.9	96.8	782.5	968.1	978.0	1044.3	697.8	-871.3	-195.5	37.86	51.98	-0.237	3.419	0.1499
4	596.1	1012.9	584.9	644.3	115.1	781.5	1064.8	1054.9	1115.4	699.8	-949.7	-273.3	38.41	51.37	-3.133	1.014	0.3000
5	597.7	982.7	580.6	588.1	141.9	787.3	1185.7	1157.4	1194.4	694.9	-1043.8	-370.2	38.15	48.17	-6.556	-2.185	0.5000
6	588.4	943.9	566.8	537.3	158.0	776.1	1298.3	1260.0	1273.4	723.1	-1140.3	-483.9	37.38	45.01	-9.394	5.421	0.7000
7	572.9	917.9	551.0	471.2	157.0	787.7	1376.9	1336.8	1338.5	723.6	-1219.9	-549.1	36.42	39.62	-11.099	-7.691	0.8500
8	561.7	889.1	540.2	405.6	154.0	791.2	1401.8	1362.5	1359.6	700.6	-1247.7	-571.3	35.70	33.96	-11.413	-8.123	0.9000
9	552.1	848.5	530.9	317.5	151.3	786.9	1425.5	1388.1	1380.4	679.8	-1274.2	-601.2	35.07	26.48	-11.119	-8.138	0.9500
	WC1/A1	WC1/A1						T02/T01	P02/P01	EFF-AD	EFF-P						
	LBM/SEC	KG/SEC								ROTOR	ROTOR						
	SQFT	SQM								X	X						
	37.02	180.67								1.2391	1.8511		80.39	82.00			

# AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 115 SPEED CODE 10 POINT NO 24

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	339.7	227.9	242.2	220.1	238.2	59.4	283.36	303.01	0.1388	0.1498
2	334.7	228.4	238.2	218.8	235.1	65.4	280.79	303.47	0.1288	0.1352
3	331.1	230.9	235.5	220.5	232.7	68.7	279.51	307.85	0.1181	0.1210
4	329.1	234.1	230.8	219.6	234.6	81.1	279.44	308.81	0.0845	0.0820
5	321.8	233.6	215.5	215.4	239.1	90.5	267.35	304.41	0.0386	0.0341
6	310.3	229.2	198.7	208.9	238.3	94.3	252.97	296.36	-0.0098	-0.0152
7	302.3	226.2	179.4	206.2	243.4	92.9	230.23	290.33	-0.0489	-0.0562
8	295.7	222.7	164.8	205.5	245.6	85.9	211.06	287.29	-0.0646	-0.0724
9	283.6	209.1	141.3	195.5	245.9	74.3	180.08	270.02	-0.0839	-0.0921

SL	B-1	B-2	M-1	M-2	INCS	INCM	DEV	TURN	D-FAC	OMEGA-B	LOSS-P	PO2/	PO/PO	TO/TO	XEFF-A	XEFF-P
	DEGREE	DEGREE			DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	STAGE	STAGE	TOT-STG	TOT-STG
1	44.4	15.1	0.9886	0.6306	-5.79	-3.12	23.20	29.35	0.5109	0.1892	0.0655	0.9121	1.7106	1.2188	75.71	77.46
2	44.5	16.6	0.9727	0.6327	-4.08	-1.10	22.51	27.93	0.4970	0.1651	0.0579	0.9249	1.6923	1.2156	75.17	76.92
3	44.6	17.3	0.9607	0.6405	-3.36	-0.08	21.45	27.32	0.4821	0.1382	0.0494	0.9382	1.7038	1.2149	76.47	78.15
4	45.4	20.2	0.9497	0.6476	-2.72	1.39	20.51	25.19	0.4691	0.1395	0.0520	0.9385	1.7278	1.2239	75.47	77.27
5	48.0	22.8	0.9195	0.6427	-3.80	1.24	18.21	25.18	0.4687	0.1430	0.0563	0.9395	1.7468	1.2362	73.09	75.10
6	50.2	24.3	0.8774	0.6270	-8.02	-2.20	16.17	25.88	0.4739	0.1501	0.0625	0.9405	1.7516	1.2450	70.84	73.02
7	53.6	24.2	0.8440	0.6134	-12.16	-5.89	16.51	29.34	0.4920	0.1636	0.0714	0.9384	1.7586	1.2632	66.44	68.97
8	56.1	22.7	0.8200	0.6010	-12.75	-6.37	15.75	33.43	0.5162	0.1704	0.0764	0.9378	1.7566	1.2723	64.06	66.76
9	60.1	20.8	0.7802	0.5602	-11.76	-5.28	14.93	39.28	0.5692	0.1770	0.0815	0.9403	1.7170	1.2803	59.53	62.44

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	PCT TE	EPSI-1	EPSI-2
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	SPAN	DEGREE	DEGREE
1	1114.6	747.9	794.8	722.1	781.4	194.8	58.03	62.06	0.0550	7.954	8.583
2	1098.1	749.2	781.6	717.9	771.4	214.6	57.51	62.15	0.1083	7.378	7.746
3	1086.3	757.6	772.7	723.3	763.5	225.3	57.25	63.05	0.1610	6.765	6.934
4	1079.8	768.1	757.4	720.6	769.7	266.1	57.23	63.25	0.3151	4.842	4.697
5	1055.9	766.6	706.9	706.7	784.4	297.1	54.76	62.35	0.5165	2.209	1.952
6	1018.0	751.9	652.1	685.3	781.8	309.3	51.81	60.70	0.7145	-0.564	-0.872
7	992.0	742.0	588.5	676.5	798.6	304.8	47.15	59.46	0.8603	-2.802	-3.219
8	970.3	730.6	540.7	674.1	805.7	281.8	43.23	58.84	0.9080	-3.703	-4.146
9	930.5	686.2	463.6	641.4	806.8	243.9	36.88	55.30	0.9548	-4.808	-5.277

	NCORR	WCORR	WCORR	WCORR			TO/TO	PO2/PO1	PO/PO	EFF-AD	EFF-P
	INLET	INLET	INLET	INLET			STAGE	STAGE	STAGE	STAGE	STAGE
	RPM	LBM/SEC	KG/SEC								
	12198.90	96.03	43.55				1.2391	0.9370	1.7346	71.22	73.34

## 100 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 115 SPEED CODE 10 POINT NO 25

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	164.0	326.5	162.8	215.7	19.6	245.2	274.3	282.5	302.3	218.9	-254.7	-37.4	171.62	262.07	0.0355	0.0900
2	173.2	319.3	171.2	208.2	25.7	242.1	284.9	290.3	310.6	213.7	-259.1	-48.2	181.09	255.14	0.0138	0.0741
3	175.9	313.9	173.5	203.3	29.0	239.2	295.1	298.1	317.6	211.6	-266.1	-58.9	183.38	252.78	-0.0051	0.0597
4	179.7	308.7	176.3	195.1	34.5	239.2	324.6	321.6	339.5	211.7	-290.1	-82.3	186.16	249.25	-0.0560	0.0180
5	180.1	300.3	175.0	177.9	42.6	242.0	361.4	352.8	363.7	209.6	-318.9	-110.9	184.81	233.51	-0.1163	-0.0380
6	177.2	288.7	170.6	161.5	48.0	239.3	395.8	384.1	387.3	216.9	-347.8	-144.8	180.81	217.05	-0.1658	-0.0948
7	172.4	280.6	165.7	140.5	47.6	242.9	419.7	407.5	407.4	216.4	-372.1	-164.6	176.14	189.58	-0.1949	-0.1343
8	169.0	272.3	162.4	121.0	45.7	243.9	427.3	415.3	413.9	209.8	-380.6	-171.4	172.55	162.57	-0.1999	-0.1417
9	166.0	266.7	159.6	95.3	45.8	242.7	434.5	423.1	420.2	204.0	-388.7	-180.4	169.40	127.62	-0.1941	-0.1419

SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PO2/	KEFF-A	KEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	6.9	48.7	57.35	9.83	0.4935	0.9428	0.9097	0.6321	0.13	6.40	7.31	47.51	0.5052	0.1577	0.0469	1.8778	89.58	90.46
2	8.5	49.3	56.51	13.06	0.5225	0.9197	0.9371	0.6156	1.13	7.25	5.61	43.44	0.5296	0.1835	0.0551	1.8317	87.02	88.07
3	9.5	49.7	56.89	16.18	0.5311	0.9020	0.9592	0.6080	2.13	8.11	5.36	40.70	0.5440	0.1882	0.0568	1.8181	86.08	87.19
4	11.1	50.8	58.74	22.88	0.5432	0.8805	1.0265	0.6039	3.89	9.56	2.83	35.86	0.5758	0.1945	0.0594	1.8437	84.41	85.68
5	13.7	53.6	61.31	31.84	0.5445	0.8475	1.0999	0.5915	4.34	9.23	0.69	29.46	0.6146	0.2177	0.0652	1.8675	81.23	82.79
6	15.8	55.8	63.97	41.73	0.5353	0.8065	1.1702	0.6060	4.66	8.91	0.67	22.24	0.6217	0.2363	0.0657	1.8742	78.24	80.06
7	16.1	59.8	66.12	49.40	0.5202	0.7737	1.2289	0.5967	4.68	8.18	1.84	16.72	0.6517	0.2932	0.0736	1.8848	72.73	75.02
8	16.1	63.5	67.03	54.70	0.5093	0.7455	1.2471	0.5745	4.73	7.97	5.28	12.33	0.6756	0.3295	0.0743	1.8650	69.35	71.88
9	16.1	68.5	67.80	62.09	0.4998	0.7093	1.2651	0.5551	4.33	7.31	11.06	5.70	0.6955	0.3673	0.0678	1.8267	65.72	68.46

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN
1	538.1	1071.4	534.2	707.7	64.3	804.3	900.1	926.9	991.9	718.3	-835.8	-122.6	35.15	53.67	2.032	5.158	0.0500
2	568.2	1047.6	561.9	683.0	84.5	794.3	934.6	952.6	1019.0	701.1	-850.2	-158.3	37.09	52.46	0.788	4.246	0.1000
3	577.0	1029.9	569.1	666.9	95.2	784.9	968.2	978.2	1042.1	694.3	-873.0	-193.3	37.56	51.77	-0.294	3.419	0.1499
4	589.5	1012.8	578.5	640.0	113.2	784.9	1065.0	1055.1	1113.9	694.7	-951.9	-270.2	38.13	51.05	-3.209	1.030	0.3000
5	590.8	985.3	574.1	583.6	139.7	793.9	1185.9	1157.6	1193.4	687.6	-1046.2	-363.7	37.85	47.82	-6.661	-2.175	0.5000
6	581.3	947.2	559.6	530.0	157.5	785.0	1298.6	1260.2	1270.9	711.8	-1141.1	-475.1	37.03	44.45	-9.502	-5.433	0.7000
7	565.8	920.7	543.8	461.1	156.2	797.0	1377.1	1337.0	1336.6	710.1	-1221.0	-540.1	36.07	38.83	-11.170	-7.697	0.8500
8	554.5	893.3	532.9	396.9	153.1	800.3	1402.0	1362.7	1357.9	688.4	-1248.9	-562.4	35.34	33.30	-11.452	-8.117	0.9000
9	544.7	855.4	523.5	312.5	150.2	796.3	1425.7	1388.3	1378.7	669.5	-1275.5	-592.0	34.69	26.14	-11.121	-8.131	0.9500
		MC1/A1		MC1/A1					T02/T01		P02/P01		EFF-AD		EFF-P		
		LBM/SEC		KG/SEC									ROTOR		ROTOR		
		SQFT		SQM									%		%		
		36.71		179.13					1.2418		1.8579		79.98		81.63		



# AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 115 SPEED CODE 10 POINT NO 25

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	339.0	220.4	241.8	212.9	237.6	56.9	283.71	298.56	0.1396	0.1502
2	333.9	220.3	236.7	211.2	235.5	62.7	279.87	298.24	0.1302	0.1360
3	330.1	222.6	233.5	212.7	233.4	65.7	277.95	302.23	0.1200	0.1221
4	328.1	226.2	228.5	212.3	235.5	77.9	277.38	303.70	0.0878	0.0838
5	321.8	227.4	213.3	209.8	240.9	87.5	265.34	301.64	0.0427	0.0367
6	310.7	223.9	196.1	204.3	241.0	91.5	250.23	294.97	-0.0063	-0.0126
7	302.8	221.6	176.2	202.4	246.2	90.4	226.66	289.93	-0.0468	-0.0544
8	296.4	218.9	161.9	202.2	248.3	83.9	207.88	287.93	-0.0633	-0.0711
9	285.1	207.0	139.3	193.8	248.8	72.9	178.11	272.75	-0.0833	-0.0914

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	XEFF-A TOT-STG	XEFF-P TOT-STG
1	44.4	14.9	0.9855	0.6078	-5.79	-3.13	23.08	29.47	0.5343	0.1811	0.0627	0.9162	1.7207	1.2200	76.18	77.91
2	44.8	16.5	0.9693	0.6085	-3.84	-0.86	22.41	28.27	0.5233	0.1592	0.0559	0.9279	1.7004	1.2169	75.48	77.23
3	44.9	17.1	0.9568	0.6155	-3.01	0.26	21.33	27.78	0.5096	0.1327	0.0474	0.9410	1.7103	1.2160	76.68	78.36
4	45.8	20.1	0.9455	0.6235	-2.30	1.81	20.39	25.73	0.4962	0.1331	0.0496	0.9417	1.7344	1.2253	75.57	77.37
5	48.5	22.6	0.9180	0.6233	-3.29	1.76	18.05	25.86	0.4940	0.1338	0.0527	0.9435	1.7604	1.2389	73.35	75.37
6	50.9	24.1	0.8771	0.6106	-7.33	-1.51	16.00	25.74	0.4993	0.1376	0.0573	0.9454	1.7701	1.2485	71.24	73.43
7	54.4	24.0	0.8437	0.5992	-11.35	-5.09	16.31	30.34	0.5158	0.1462	0.0639	0.9449	1.7804	1.2671	67.01	69.55
8	56.9	22.5	0.8206	0.5892	-11.98	-5.60	15.58	34.37	0.5371	0.1489	0.0668	0.9455	1.7819	1.2763	64.87	67.57
9	60.7	20.6	0.7833	0.5532	-11.12	-4.64	14.72	40.12	0.5860	0.1497	0.0690	0.9492	1.7490	1.2846	60.77	63.69

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	1112.2	723.0	793.2	698.5	779.7	186.8	58.11	61.15	0.0550	7.997	8.608
2	1095.4	722.9	776.5	693.0	772.7	205.8	57.32	61.08	0.1083	7.457	7.792
3	1083.1	730.4	766.0	697.8	765.8	215.7	56.93	61.90	0.1610	6.877	6.998
4	1076.5	742.1	749.6	696.7	772.7	255.5	56.81	62.20	0.3151	5.029	4.804
5	1055.7	746.0	699.7	688.5	790.5	287.1	54.34	61.78	0.5165	2.447	2.104
6	1019.3	734.6	643.3	670.5	790.6	300.2	51.25	60.41	0.7145	-0.362	-0.724
7	993.4	727.1	578.0	663.9	807.9	296.5	46.42	59.38	0.8603	-2.684	-3.116
8	972.6	718.3	531.1	663.6	814.8	275.1	42.58	58.97	0.9080	-3.627	-4.072
9	935.5	679.3	457.0	635.7	816.3	239.2	36.48	55.86	0.9548	-4.774	-5.237
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1 STAGE	PO/PO STAGE	EFF-AD STAGE %	EFF-P STAGE %
	12201.00	95.21	43.18				1.2418	0.9417	1.7496	71.60	73.72

## AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 115 SPEED CODE 10 POINT NO 26

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2		
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN		
1	157.2	324.5	155.9	211.3	19.5	246.3	274.4	282.5	298.8	214.4	-254.9	-36.2	166.44	257.52	0.0351	0.0901		
2	166.3	317.0	164.4	204.5	24.7	242.3	284.9	290.4	307.8	210.0	-260.2	-48.1	176.08	252.38	0.0131	0.0744		
3	168.9	311.7	166.6	199.3	27.8	239.6	295.1	298.2	314.9	207.7	-267.3	-58.5	178.30	248.62	-0.0062	0.0602		
4	172.1	308.1	168.8	189.7	33.5	242.8	324.6	321.6	335.6	205.5	-291.1	-78.8	180.53	243.11	-0.0581	0.0190		
5	172.5	300.2	167.4	171.1	41.6	246.6	361.5	352.9	361.0	201.4	-319.9	-106.3	179.04	225.61	-0.1190	-0.0369		
6	169.7	289.6	163.2	154.9	46.4	244.6	395.8	384.1	385.6	208.5	-349.4	-139.5	175.17	209.41	-0.1682	-0.0946		
7	165.1	281.7	158.6	130.5	45.8	249.7	419.8	407.5	406.2	204.8	-373.9	-157.9	170.56	177.08	-0.1949	-0.1331		
8	161.7	276.0	155.3	114.9	44.9	250.9	427.3	415.4	412.7	200.6	-382.4	-164.5	166.98	155.81	-0.1973	-0.1400		
9	158.8	267.5	152.5	94.4	44.1	250.2	434.6	423.2	419.2	197.0	-390.5	-172.9	163.83	127.85	-0.1898	-0.1409		
SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PO2/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	7.1	49.4	58.48	9.74	0.4719	0.9354	0.8972	0.6179	1.26	7.53	7.22	48.74	0.5160	0.1793	0.0533	1.8695	88.39	89.36
2	8.5	49.9	57.68	13.25	0.5006	0.9116	0.9268	0.6040	2.30	8.43	5.80	44.42	0.5385	0.2024	0.0607	1.8242	85.91	87.04
3	9.5	50.3	58.06	16.39	0.5088	0.8939	0.9490	0.5957	3.30	9.29	5.57	41.67	0.5542	0.2070	0.0624	1.8117	84.92	86.12
4	11.2	52.0	59.92	22.56	0.5192	0.8766	1.0151	0.5846	5.07	10.74	2.51	37.36	0.5952	0.2159	0.0661	1.8497	83.11	84.50
5	14.0	55.1	62.45	31.74	0.5202	0.8444	1.0891	0.5667	5.48	10.37	0.59	30.70	0.6398	0.2387	0.0716	1.8805	79.96	81.65
6	15.9	57.5	65.06	41.85	0.5114	0.8059	1.1623	0.5802	5.75	10.00	0.79	23.21	0.6488	0.2566	0.0712	1.8976	77.07	79.02
7	16.2	62.3	67.14	50.31	0.4968	0.7730	1.2225	0.5619	5.70	9.20	2.76	16.83	0.6871	0.3187	0.0786	1.9118	71.34	73.80
8	16.2	65.3	68.01	54.96	0.4862	0.7527	1.2411	0.5473	5.71	8.95	5.54	13.06	0.7053	0.3468	0.0777	1.9059	68.90	71.56
9	16.2	69.3	68.76	61.29	0.4769	0.7252	1.2595	0.5342	5.29	8.27	10.26	7.47	0.7204	0.3770	0.0714	1.8833	66.19	69.03
SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE	
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN	
1	515.6	1064.7	511.6	693.2	64.0	808.1	900.2	927.0	980.3	703.3	-836.2	-118.9	34.09	52.74	2.014	5.165	0.0500	
2	545.5	1040.1	539.5	670.8	80.9	794.8	934.7	952.7	1009.9	689.2	-853.8	-157.8	36.06	51.69	0.749	4.264	0.1000	
3	554.1	1022.6	546.5	653.9	91.4	786.2	968.3	978.3	1033.3	681.6	-876.9	-192.1	36.52	50.92	-0.357	3.450	0.1499	
4	564.8	1010.9	554.0	622.5	109.9	796.5	1065.1	1055.2	1104.2	674.1	-955.2	-258.7	36.97	49.79	-3.331	1.087	0.3000	
5	565.8	984.9	549.1	561.5	136.5	809.1	1186.0	1157.7	1184.5	660.9	-1049.5	-348.6	36.67	46.21	-6.817	-2.115	0.5000	
6	556.7	950.1	535.5	508.4	152.3	802.7	1298.7	1260.3	1265.3	684.0	-1146.4	-457.6	35.88	42.89	-9.637	-5.423	0.7000	
7	541.6	924.3	520.3	428.1	150.4	819.2	1377.3	1337.2	1332.7	671.9	-1226.9	-517.9	34.93	36.27	-11.167	-7.628	0.8500	
8	530.6	905.4	509.7	377.1	147.5	823.2	1402.1	1362.8	1354.2	658.3	-1254.7	-539.6	34.20	31.91	-11.306	-8.022	0.9000	
9	520.9	877.5	500.4	309.7	144.6	821.1	1425.9	1388.4	1375.5	646.4	-1281.2	-567.4	33.55	26.19	-10.877	-8.074	0.9500	
	WC1/A1		WC1/A1						T02/T01	PO2/PO1	EFF-AD	EFF-P						
	LBM/SEC		LBM/SEC								ROTOR	ROTOR						
	SQFT		SQFT								%	%						
	35.55		173.48						1.2486	1.8716	78.82	80.59						

# AIRFOIL AERODYNAMIC SUMMARY PRINT

100 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 115 SPEED CODE 10 POINT NO 26

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	333.9	201.2	233.4	194.5	238.8	51.2	277.31	282.79	0.1409	0.1509
2	328.4	200.6	228.8	192.5	235.6	56.6	273.91	281.45	0.1330	0.1375
3	324.5	202.9	225.2	194.1	233.7	59.1	271.53	285.50	0.1244	0.1245
4	324.2	207.3	219.3	194.9	238.8	70.5	269.44	287.72	0.0959	0.0886
5	318.9	210.8	203.6	194.9	245.4	80.2	256.27	288.99	0.0532	0.0436
6	309.6	212.1	187.6	194.0	246.2	85.6	242.08	289.22	0.0029	-0.0056
7	302.3	213.1	165.3	195.2	253.1	85.5	214.64	289.05	-0.0423	-0.0497
8	298.0	211.8	153.3	196.1	255.5	80.0	198.94	288.64	-0.0609	-0.0681
9	289.9	204.8	135.1	192.2	256.5	70.8	175.10	280.30	-0.0825	-0.0902

SL	B-1	B-2	M-1	M-2	INCS	INCM	DEV	TURN	D-FAC	OMEGA-B	LOSS-P	PO2/	PO/PO	TO/TO	XEFF-A	XEFF-P
	DEGREE	DEGREE			DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	STAGE	STAGE	TOT-STG	TOT-STG
1	45.6	14.7	0.9674	0.5511	-4.65	-1.98	22.85	30.84	0.5924	0.1700	0.0589	0.9232	1.7276	1.2214	76.31	78.04
2	45.8	16.3	0.9501	0.5502	-2.83	0.15	22.25	29.43	0.5829	0.1501	0.0527	0.9338	1.7051	1.2181	75.47	77.22
3	46.0	16.9	0.9371	0.5571	-1.94	1.34	21.09	29.09	0.5694	0.1228	0.0440	0.9468	1.7138	1.2170	76.63	78.31
4	47.4	19.9	0.9302	0.5670	-0.72	3.39	20.13	27.57	0.5600	0.1333	0.0498	0.9429	1.7393	1.2292	74.70	76.58
5	50.3	22.4	0.9055	0.5734	-1.45	3.60	17.79	27.96	0.5554	0.1324	0.0523	0.9451	1.7730	1.2445	72.66	74.75
6	52.7	23.8	0.8700	0.5742	-5.50	9.32	15.68	28.89	0.5513	0.1231	0.0514	0.9516	1.8019	1.2567	71.31	73.56
7	56.8	23.6	0.8378	0.5722	-8.92	-2.66	15.90	33.19	0.5597	0.1136	0.0498	0.9576	1.8260	1.2777	67.53	70.13
8	59.0	22.2	0.8208	0.5661	-9.84	-3.46	15.24	36.84	0.5783	0.1166	0.0524	0.9576	1.8327	1.2878	65.58	68.35
9	62.2	20.2	0.7933	0.5442	-9.67	-3.19	14.33	41.97	0.6152	0.1152	0.0533	0.9602	1.8189	1.2973	62.61	65.57

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	PCT TE	EPSI-1	EPSI-2
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	SPAN	DEGREE	DEGREE
1	1095.6	660.0	765.9	638.3	783.4	168.0	56.80	57.92	0.0550	8.073	8.647
2	1077.5	658.1	750.5	631.4	773.2	185.6	56.10	57.64	0.1083	7.619	7.879
3	1064.8	665.6	739.0	636.7	766.6	193.9	55.61	58.47	0.1610	7.126	7.136
4	1063.7	680.1	719.5	639.6	783.4	231.2	55.18	58.93	0.3151	5.495	5.078
5	1046.2	691.5	668.1	639.5	805.1	263.2	52.49	59.19	0.5165	3.047	2.499
6	1015.7	695.8	615.7	636.6	807.9	280.8	49.58	59.23	0.7145	0.164	-0.322
7	992.0	699.3	542.4	640.6	830.6	280.5	43.96	59.20	0.8603	-2.421	-2.846
8	977.6	695.0	502.8	643.5	838.4	262.5	40.74	59.12	0.9080	-3.487	-3.902
9	951.1	672.0	443.4	630.6	841.4	232.3	35.86	57.41	0.9548	-4.727	-5.166
	NCORR	WCORR	WCORR	WCORR			TO/TO	PO2/PO1	PO/PO	EFF-AD	EFF-P
	INLET	INLET	INLET	INLET			STAGE	STAGE	STAGE	STAGE	STAGE
	RPM	LBM/SEC	KG/SEC								
	12202.10	92.21	41.82				1.2486	0.9475	1.7733	71.47	73.65

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OF POOR QUALITY.

APPENDIX E

Overall and Blade Element Performance Tabulations  
Low Speed, Restaggered Vane Angles

PRECEDING PAGE BLANK NOT FILMED

XX PERCENT DESIGN SPEED (ROTOR PERFORMANCE)						AIRFOIL AERODYNAMIC SUMMARY PRINT													
						RUN NO XXX								SPEED CODE XX		POINT NO X			
SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	U-1 M/SEC	U-2 M/SEC	V'-1 M/SEC	V'-2 M/SEC	VO'-1 M/SEC	VO'-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN			
1																			
2																			
3	V <sub>RLE</sub>		V <sub>m,RLE</sub>		V <sub>θ,RLE</sub>		U <sub>RLE</sub>		V' <sub>RLE</sub>		V' <sub>θ,RLE</sub>		PV <sub>m,RLE</sub>		ε <sub>RLE</sub>				
4		V <sub>RTE</sub>		V <sub>m,RTE</sub>		V <sub>θ,RTE</sub>		U <sub>RTE</sub>		V' <sub>RTE</sub>		V' <sub>θ,RTE</sub>		PV <sub>m,RTE</sub>		ε <sub>RTE</sub>			
5																			
6																			
7																			
8																			
9																			
SL	B-1 DEGREE	B-2 DEGREE	B'-1 DEGREE	B'-2 DEGREE	M-1	M-2	M'-1	M'-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURNO DEGREE	D FAC	OMEGA-B TOTAL	LOSS-P TOTAL	POZ/ POI	%EFF-A TOTAL	%EFF-P TOTAL	
1																			
2																			
3	β <sub>RLE</sub>		β' <sub>RLE</sub>		M <sub>RLE</sub>		M' <sub>RLE</sub>		i <sub>ss</sub>		δ°		D	$\frac{\omega \cos \beta'}{2U}$	RTE		η <sub>ad</sub>		
4		β <sub>RTE</sub>		β' <sub>RTE</sub>		M <sub>RTE</sub>		M' <sub>RTE</sub>		i <sub>m</sub>		Δβ'		ω		$\frac{P_{T,RTE}}{P_{T,RLE}}$	$\frac{RTE}{RLE}$	η <sub>p</sub>	
5																			
6																			
7																		RTE RLE	
8																			
9																			
SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	U-1 FT/SEC	U-2 FT/SEC	V'-1 FT/SEC	V'-2 FT/SEC	VO'-1 FT/SEC	VO'-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	EPSI-1 DEGREE	EPSI-2 DEGREE	PCT TE SPAN		
1																			
2																			
3	V <sub>RLE</sub>		V <sub>m,RLE</sub>		V <sub>θ,RLE</sub>		U <sub>RLE</sub>		V' <sub>RLE</sub>		V' <sub>θ,RLE</sub>		PV <sub>m,RLE</sub>		ε <sub>RLE</sub>		% span		
4		V <sub>RTE</sub>		V <sub>m,RTE</sub>		V <sub>θ,RTE</sub>		U <sub>RTE</sub>		V' <sub>RTE</sub>		V' <sub>θ,RTE</sub>		PV <sub>m,RTE</sub>		ε <sub>RTE</sub>	RTE		
5																			
6																			
7																			
8																			
9																			
	WC1/A1 LBM/SEC	WC1/A1 KG/SEC							TU2/T01	PO2/PO1	EFF-AD ROTOR %	EFF-P ROTOR %							
	SQFT	SQM							T <sub>T,RTE</sub>	P <sub>T,RTE</sub>	η <sub>ad</sub>	η <sub>p</sub>							
	$\frac{W\sqrt{s}}{\delta A}$	$\frac{W\sqrt{s}}{\delta A}$							$\frac{T_{T,RTE}}{T_{T,RLE}}$	$\frac{P_{T,RTE}}{P_{T,RLE}}$	$\frac{RTE}{RLE}$	$\frac{RTE}{RLE}$							

SYMBOL TRANSLATION

## A1FFOIL AERODYNAMIC SUMMARY PRINT

ALFOIL AERODYNAMIC SUMMARY PRINT  
RUN NO XXX SPEED CODE XX POINT NO X

	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN						
1																
2																
3	VSLE		Vm,SLE		Vθ,SLE		PV <sub>m</sub> ,SLE		e <sub>SLE</sub>	e <sub>STE</sub>						
4		VSTE		Vm,STE		Vθ,STE		PV <sub>m</sub> ,STE								
5																
6																
7																
8																
9																
SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCW DEGREE	DEV DEGREE	TURD DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	POZ/ POL	FO/PO STAGE	TO/TO STAGE	XEFF-A TOT-STG	XEFF-P TOT-STG
1																
2	β SLE		M SLE		i <sub>ss</sub>	i <sub>m</sub>	δ°	Δ β	0		$\frac{\omega \cos \beta}{2\sigma}$ STE		$\frac{PT,STE}{PT,RLE}$		η <sub>ad</sub>	η <sub>p</sub>
3		β STE		M STE												
4																
5													$\frac{PT,STE}{PT,SLE}$			
6														$\frac{Tt,STE}{Tt,RLE}$	STE RLE	STE RLE
7																
8																
9																
SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE					
1																
2																
3	VSLE		Vm,SLE		Vθ,SLE		PV <sub>m</sub> ,SLE		% span	e <sub>SLE</sub>	e <sub>STE</sub>					
4		VSTE		Vm,STE	Vθ,STE		PV <sub>m</sub> ,STE		STE							
5																
6																
7																
8																
9																
	NCORR INLET APM $\frac{N}{\sqrt{P}}$	WCORR INLET LBH/SEC	WCORR INLET KG/SEC $\frac{W/G}{\delta}$				TO/TO STAGE $\frac{Tt,STE}{Tt,RLE}$	POZ/POI $\frac{Pt,STE}{Pt,RLE}$	PO/PO STAGE $\frac{Pt,STE}{Pt,RLE}$	EFF-AD STAGE %	EFF-P STAGE %					
		$\frac{W/G}{\delta}$								η <sub>ad</sub>	η <sub>p</sub>					
	RLE	RLE	RLE							STE RLE	STE RLE					

## AIRFOIL AERODYNAMIC SUMMARY PRINT

70 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 107 SPEED CODE 70 POINT NO 4

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	141.2	159.8	101.8	67.1	97.9	145.0	192.0	197.7	138.7	85.3	-94.1	-52.6	107.37	64.11	0.0797	0.1261
2	147.6	165.6	100.3	79.5	108.3	145.3	199.3	203.2	135.5	98.3	-91.0	-57.9	106.46	76.80	0.0793	0.1400
3	150.4	179.2	93.5	97.3	117.8	150.4	206.5	208.6	128.8	113.4	-88.7	-58.2	99.71	95.40	0.0684	0.1471
4	149.8	209.8	72.2	110.9	131.2	178.1	227.1	225.0	120.1	120.4	-95.9	-46.9	78.33	113.45	0.0189	0.1335
5	141.0	217.8	62.4	105.2	126.5	190.7	252.9	246.9	141.0	119.3	-126.4	-56.2	68.69	112.11	-0.0636	0.0679
6	134.9	218.2	53.0	79.7	124.0	203.1	276.9	268.8	161.8	103.3	-152.9	-65.6	59.23	87.07	-0.1532	-0.0435
7	128.2	206.5	52.2	55.4	117.1	199.0	293.7	285.1	184.2	102.5	-176.6	-86.2	58.80	61.23	-0.1779	-0.1082
8	120.6	199.1	53.0	56.4	108.3	191.0	299.0	290.6	197.9	114.5	-190.7	-99.6	59.73	62.38	-0.1758	-0.1216
9	115.7	192.3	54.0	50.5	102.3	185.6	304.1	296.1	208.9	121.5	-201.8	-110.5	60.86	55.94	-0.1714	-0.1313

SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	P02/	%EFF-A	%EFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	P01	TOTAL	TOTAL
1	43.9	65.3	42.74	38.27	0.4224	0.4711	0.4146	0.2514	-14.48	-8.21	35.74	4.47	0.5036	1.4057	0.3331	0.9661	-26.16	-26.79
2	47.2	61.5	42.27	36.29	0.4422	0.4890	0.4058	0.2903	-13.11	-6.98	28.84	5.98	0.4117	1.2748	0.3166	0.9815	-14.27	-14.60
3	51.6	57.4	43.56	31.14	0.4507	0.5308	0.3862	0.3359	-11.20	-5.22	20.32	12.41	0.3023	1.1050	0.2971	1.0082	5.65	5.75
4	61.2	58.3	53.01	23.10	0.4488	0.6258	0.3599	0.3590	-1.84	3.83	3.05	29.91	0.1845	0.8042	0.2453	1.0906	53.83	54.40
5	63.7	61.1	63.70	28.06	0.4216	0.6487	0.4215	0.3554	6.73	11.62	-3.09	3.64	0.2763	0.4807	0.1497	1.1462	72.26	72.79
6	66.9	68.4	70.92	39.22	0.4027	0.6451	0.4831	0.3054	11.61	15.86	-1.84	31.71	0.5319	0.4601	0.1327	1.1788	68.77	69.49
7	66.0	74.3	73.59	57.07	0.3820	0.6055	0.5490	0.3004	12.14	15.65	9.52	16.52	0.6145	0.4965	0.1042	1.1764	60.61	61.51
8	64.0	73.5	74.49	60.34	0.3589	0.5817	0.5890	0.3344	12.19	15.43	10.92	14.15	0.5791	0.4790	0.0925	1.1738	58.30	59.23
9	62.2	74.7	75.03	65.33	0.3439	0.5600	0.6210	0.3538	11.56	14.55	14.30	9.70	0.5690	0.4832	0.0796	1.1686	55.27	56.24

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN
1	463.4	524.3	334.2	220.0	321.1	475.9	629.8	648.6	455.0	279.7	-308.7	-172.7	21.99	13.13	4.564	7.227	0.0500
2	484.4	543.3	329.2	260.8	355.3	476.6	654.0	666.5	444.5	322.6	-298.7	-189.9	21.80	15.73	4.544	8.022	0.1000
3	493.3	587.8	306.6	319.3	386.5	493.5	677.5	684.5	422.7	372.0	-291.0	-190.9	20.42	19.54	3.921	8.426	0.1499
4	491.4	688.4	237.0	363.7	430.5	584.5	745.2	738.3	394.0	394.9	-314.8	-153.8	16.04	23.23	1.082	7.647	0.3000
5	462.7	714.6	204.6	345.3	415.0	625.6	829.8	810.0	462.6	391.5	-414.9	-184.4	14.07	22.96	-3.642	3.890	0.5000
6	442.5	715.9	173.9	261.6	406.9	666.4	908.6	881.8	531.0	338.9	-501.7	-215.4	12.13	17.83	-8.780	-2.492	0.7000
7	420.5	677.6	171.2	181.8	384.1	652.8	963.6	935.6	604.3	336.2	-579.6	-282.8	12.04	12.54	-10.194	-6.199	0.8500
8	395.7	653.4	174.0	185.0	355.4	626.6	981.0	953.5	649.3	375.6	-625.6	-326.9	12.23	12.78	-10.075	-6.968	0.9000
9	379.5	631.0	177.2	165.7	335.6	608.9	997.6	971.4	685.3	398.6	-662.0	-362.6	12.46	11.46	-9.819	-7.522	0.9500
	WC1/A1	WC1/A1							TO2/TO1	P02/P01	EFF-AD	EFF-P					
	LBM/SEC	KG/SEC									ROTOR	ROTOR					
	SOFT	SQM									%	%					
	15.21	74.22							1.0576	1.1213	57.77	58.46					

AIRFOIL AERODYNAMIC SUMMARY PRINT  
70 PERCENT DESIGN SPEED (STATOR PERFORMANCE) RUN NO 107 SPEED CODE 70 POINT NO 4

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	153.3	96.2	61.5	67.5	140.5	68.6	59.25	66.54	0.1459	0.1378
2	156.2	103.1	70.8	74.1	139.2	71.7	68.63	73.41	0.1433	0.1138
3	169.1	119.4	90.8	89.3	142.7	79.2	89.06	89.12	0.1420	0.0973
4	207.3	169.9	120.7	127.5	168.6	112.2	122.71	130.95	0.1261	0.0655
5	221.6	195.4	121.0	130.3	185.7	145.6	127.12	137.93	0.0787	0.0250
6	226.0	206.3	106.2	123.9	199.5	164.9	114.00	133.50	0.0293	-0.0081
7	219.3	205.6	76.7	119.2	205.4	167.5	83.20	129.15	-0.0360	-0.0521
8	212.0	199.3	80.7	114.1	196.1	163.4	87.62	123.40	-0.0616	-0.0745
9	204.6	191.3	75.2	108.0	190.2	158.0	81.62	116.31	-0.0844	-0.0959

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	P02/ P01	P0/P0 STAGE	TO/TO STAGE	%EFF-A TOT-STG	%EFF-P TOT-STG
1	66.3	45.4	0.4513	0.2797	-8.91	-6.24	28.51	20.93	0.5312	0.2835	0.0714	0.9629	0.9297	1.0376	-54.98	-56.61
2	63.0	43.9	0.4599	0.3002	-10.59	-7.61	24.81	19.12	0.4949	0.2882	0.0760	0.9605	0.9374	1.0378	-48.60	-49.99
3	57.6	41.4	0.4997	0.3484	-15.38	-12.11	20.60	16.14	0.4281	0.2832	0.0794	0.9555	0.9527	1.0385	-35.87	-36.82
4	54.5	41.3	0.6182	0.5003	-18.68	-14.56	16.53	13.21	0.2701	0.1987	0.0593	0.9558	1.0274	1.0449	17.10	17.40
5	57.0	48.2	0.6620	0.5784	-19.81	-14.76	18.57	8.81	0.1862	0.1455	0.0414	0.9631	1.0918	1.0515	49.38	50.01
6	62.0	53.1	0.6712	0.6089	-21.21	-15.39	19.97	8.89	0.1495	0.1171	0.0321	0.9694	1.1380	1.0643	58.61	59.36
7	69.5	54.5	0.6461	0.6033	-21.24	-14.98	21.81	14.96	0.1589	0.1193	0.0331	0.9702	1.1424	1.0762	50.93	51.84
8	67.6	55.1	0.6224	0.5826	-26.25	-19.87	23.13	12.55	0.1540	0.1291	0.0359	0.9697	1.1408	1.0790	48.56	49.51
9	68.4	55.6	0.5981	0.5570	-28.45	-21.97	24.76	12.75	0.1547	0.1411	0.0392	0.9694	1.1337	1.0820	44.58	45.56

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	503.1	315.6	201.8	221.3	460.9	225.0	12.13	13.63	0.0550	8.361	7.896
2	512.4	338.4	232.2	243.2	456.7	235.3	14.06	15.04	0.1083	8.211	6.519
3	554.9	391.7	297.8	293.1	468.2	259.8	18.24	18.25	0.1610	8.134	5.578
4	680.3	557.3	396.1	418.4	553.0	368.1	25.13	26.82	0.3151	7.223	3.754
5	727.2	641.1	397.0	427.6	609.2	477.7	26.04	28.25	0.5165	4.508	1.433
6	741.5	676.8	348.4	406.4	654.5	541.1	23.35	27.34	0.7145	1.682	-0.461
7	719.5	674.7	251.6	391.2	674.0	549.7	17.04	26.45	0.8603	-2.063	-2.982
8	695.6	653.9	264.8	374.4	643.3	536.1	17.94	25.27	0.9080	-3.527	-4.268
9	671.2	627.7	246.8	354.2	624.1	518.3	16.72	23.82	0.9548	-4.836	-5.492
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	P02/P01	P0/P0 STAGE	EFF-AD STAGE %	EFF-P STAGE %
	8537.40	39.45	17.89				1.0576	0.9643	1.0813	39.25	39.92



## AIRFOIL AERODYNAMIC SUMMARY PRINT

70 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 107 SPEED CODE 70 POINT NO 5

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	128.7	191.7	94.7	124.7	87.1	145.7	192.0	197.7	141.3	135.1	-104.8	-52.0	102.59	124.06	0.0375	0.1182
2	134.9	201.6	93.7	128.3	97.0	155.5	199.3	203.2	138.8	136.9	-102.3	-47.7	102.18	129.46	0.0155	0.1215
3	137.0	208.3	87.4	124.8	105.4	166.8	206.5	208.6	133.7	131.6	-101.1	-41.9	95.79	127.33	-0.0058	0.1198
4	135.7	215.4	69.1	108.5	116.8	186.1	227.1	225.0	130.2	115.3	-110.3	-38.9	76.76	114.02	-0.0710	0.0931
5	127.4	213.6	56.4	86.3	114.3	195.4	252.9	246.9	149.7	100.5	-138.6	-51.5	63.48	92.83	-0.1570	0.0139
6	121.3	208.3	44.3	42.0	112.9	204.0	277.0	268.8	169.9	77.2	-164.0	-64.7	50.48	46.12	-0.2190	-0.0790
7	112.0	198.6	41.2	34.5	104.1	195.6	293.7	285.2	194.0	96.0	-189.6	-89.6	47.26	38.43	-0.1537	-0.1054
8	106.1	196.3	42.8	50.2	97.1	189.7	299.0	290.6	206.4	112.7	-201.9	-160.9	49.10	56.19	-0.1439	-0.1108
9	103.1	193.0	46.0	55.5	92.3	184.9	304.1	296.1	216.7	124.3	-211.8	-111.2	52.78	62.24	-0.1520	-0.1235

SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PO2/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	42.6	49.6	47.84	22.74	0.3836	0.5692	0.4211	0.4010	-9.38	-3.10	20.21	25.11	0.1798	0.8688	0.2418	1.0450	29.43	29.86
2	45.9	50.6	47.47	20.50	0.4028	0.6000	0.4143	0.4075	-7.91	-1.78	13.05	26.97	0.1631	0.7688	0.2218	1.0659	40.94	41.48
3	50.3	53.4	49.12	18.66	0.4091	0.6206	0.3993	0.3921	-5.63	0.35	7.84	30.46	0.1791	0.7459	0.2220	1.0836	49.05	49.64
4	59.4	59.9	57.99	19.80	0.4053	0.6417	0.3887	0.3433	3.14	8.81	-0.25	38.19	0.2843	0.6736	0.2101	1.1204	61.84	62.44
5	63.9	66.1	68.04	30.73	0.3798	0.6319	0.4460	0.2973	11.07	15.96	-0.42	37.31	0.5152	0.5875	0.1782	1.1474	61.46	62.20
6	68.9	78.3	75.11	56.83	0.3609	0.6106	0.5057	0.2263	15.80	20.04	15.78	18.28	0.7359	0.6215	0.1266	1.1650	55.73	56.68
7	68.4	79.9	77.72	68.80	0.3327	0.5785	0.5763	0.2796	16.28	19.78	21.25	8.92	0.6748	0.5899	0.0823	1.1759	54.83	55.85
8	66.1	75.1	77.99	63.38	0.3149	0.5704	0.6125	0.3276	15.69	18.93	13.96	14.61	0.6115	0.5474	0.0957	1.1834	55.56	56.61
9	63.5	73.2	77.72	63.36	0.3059	0.5595	0.6426	0.3604	14.25	17.23	12.33	14.36	0.5854	0.5218	0.0923	1.1864	54.38	55.48

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN
1	422.2	629.0	310.7	409.0	285.9	477.9	629.9	648.6	463.5	443.2	-344.0	-170.7	21.01	25.41	2.149	6.772	0.0500
2	442.6	661.4	307.6	421.0	318.3	510.1	654.0	666.6	455.3	449.2	-335.7	-156.5	20.93	26.51	0.890	6.960	0.1000
3	449.4	683.3	286.9	409.3	345.9	547.2	677.5	684.5	438.5	431.8	-331.7	-137.3	19.62	26.08	-0.332	6.864	0.1499
4	445.3	706.9	226.7	356.0	383.3	610.7	745.2	738.3	427.1	378.2	-362.0	-127.7	15.72	23.35	-4.066	5.333	0.3000
5	418.1	700.8	184.9	283.1	375.0	641.1	829.9	810.1	491.0	329.7	-454.9	-169.0	13.00	19.01	-8.995	0.799	0.5000
6	397.9	683.5	145.2	137.9	370.4	669.4	908.7	881.8	557.5	253.3	-538.2	-212.4	10.34	9.45	-12.546	-4.524	0.7000
7	367.5	651.6	135.2	113.1	341.7	641.7	963.7	935.6	636.5	314.9	-622.0	-293.9	9.68	7.87	-8.806	-6.039	0.8500
8	348.2	643.9	140.5	164.7	318.6	622.5	981.1	953.6	677.2	369.8	-662.5	-331.1	10.06	11.51	-8.243	-6.351	0.9000
9	338.4	633.2	150.9	182.0	302.9	606.5	997.7	971.5	711.0	407.9	-694.8	-365.0	10.81	12.75	-8.710	-7.080	0.9500

	WCI/A1	WCI/A1	T02/T01	P02/P01	EFF-AD	EFF-P
	LBM/SEC	KG/SEC			ROTOR	ROTOR
	SQFT	SQM			%	%
	13.86	67.62	1.0624	1.1263	55.48	56.22

# AIRFOIL AERODYNAMIC SUMMARY PRINT

70 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 107 SPEED CODE 70 POINT NO 5

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	177.7	79.1	110.4	54.7	139.3	57.1	111.70	59.83	0.1863	0.1651
2	188.3	84.4	119.0	59.7	146.0	59.6	121.75	65.49	0.2108	0.1652
3	196.6	96.3	119.9	70.9	155.8	65.1	123.64	78.13	0.2230	0.1668
4	209.6	130.5	110.5	92.4	178.1	86.9	116.22	109.17	0.2236	0.1638
5	213.2	152.5	102.5	109.1	187.0	106.5	109.81	124.97	0.1879	0.1334
6	212.2	160.6	68.3	107.2	200.9	119.6	74.25	124.33	0.1069	0.0352
7	206.6	167.2	51.9	108.3	200.0	127.4	57.11	125.92	-0.0160	-0.0007
8	204.5	166.6	65.0	107.0	193.9	127.7	71.67	124.25	-0.0563	-0.0505
9	201.9	164.0	69.4	104.4	189.6	126.4	76.66	120.93	-0.0838	-0.0883

SL	B-1	B-2	M-1	M-2	INCS	INCM	DEV	TURN	D-FAC	OMEGA-B	LOSS-P	PO2/	PO/PO	TO/TO	XEFF-A	XEFF-P
	DEGREE	DEGREE			DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	STAGE	STAGE	TOT-STG	TOT-STG
1	51.7	46.3	0.5253	0.2288	-23.48	-20.81	29.40	5.46	0.7064	0.1407	0.0349	0.9763	1.0105	1.0428	7.00	7.13
2	51.1	45.0	0.5583	0.2442	-22.51	-19.53	25.91	6.11	0.6781	0.1478	0.0383	0.9745	1.0155	1.0429	10.26	10.45
3	52.8	42.7	0.5837	0.2792	-20.10	-16.83	21.88	10.14	0.6212	0.1526	0.0419	0.9719	1.0238	1.0433	15.54	15.82
4	58.7	42.0	0.6234	0.3800	-14.46	-10.34	17.26	16.70	0.4809	0.1086	0.0320	0.9766	1.0612	1.0478	35.80	36.34
5	61.7	44.5	0.6319	0.4448	-15.10	-10.05	14.94	17.16	0.4117	0.0746	0.0227	0.9824	1.1046	1.0545	52.90	53.56
6	71.3	48.2	0.6238	0.4671	-11.86	-6.04	15.12	23.09	0.3818	0.0458	0.0139	0.9893	1.1358	1.0657	56.48	57.25
7	75.4	49.6	0.6035	0.4836	-15.32	-9.06	16.84	25.85	0.3689	0.0354	0.0110	0.9920	1.1563	1.0812	52.27	53.24
8	71.5	50.0	0.5961	0.4804	-22.40	-16.02	18.04	21.48	0.3601	0.0440	0.0138	0.9904	1.1645	1.0864	51.48	52.52
9	69.9	50.4	0.5868	0.4715	-26.37	-20.49	19.54	19.46	0.3519	0.0576	0.0181	0.9879	1.1713	1.0912	50.72	51.81

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	PCT TE	EPSI-1	EPSI-2
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	SPAN	DEGREE	DEGREE
1	583.1	259.5	362.2	179.5	457.0	187.5	22.88	12.25	0.0550	10.676	9.462
2	618.0	276.8	390.6	195.9	478.9	195.5	24.93	13.41	0.1083	12.077	9.468
3	645.0	315.9	393.5	232.6	511.1	213.7	25.32	16.00	0.1610	12.775	9.555
4	687.7	428.2	362.7	319.5	584.3	285.1	23.80	22.36	0.3151	12.810	9.386
5	699.6	500.2	336.3	358.0	613.5	349.3	22.49	25.60	0.5165	10.765	7.541
6	696.1	527.0	224.0	351.7	659.1	392.5	15.21	25.46	0.7145	6.125	4.881
7	677.8	548.7	170.3	355.4	656.1	418.1	11.70	25.79	0.8603	-0.916	-0.043
8	671.0	546.6	213.1	351.1	636.3	416.8	14.68	25.45	0.9080	-3.227	-2.893
9	662.3	538.0	227.6	342.6	622.0	414.8	15.70	24.77	0.9548	-4.801	-5.059
	NCORR	WCORR	WCORR				TO/TO	PO2/PO1	PO/PO	EFF-A	EFF-P
	INLET	INLET	INLET				STAGE	STAGE	STAGE	STAGE	STAGE
	RPM	LBM/SEC	KG/SEC							%	%
	8537.80	35.94	16.30				1.0624	0.9841	1.1084	47.89	48.65

## AIRFOIL AERODYNAMIC SUMMARY PRINT

70 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 107 SPEED CODE 70 POINT NO 7

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	114.6	192.9	85.8	131.7	76.0	141.0	192.0	197.7	144.2	143.4	-116.0	-56.7	94.34	133.41	0.0287	0.1161
2	122.3	202.2	86.9	131.3	86.0	153.8	199.3	203.1	142.9	140.2	-113.3	-49.3	96.18	134.55	-0.0004	0.1185
3	125.0	207.2	82.3	125.6	94.1	164.8	206.5	208.6	139.3	133.0	-112.4	-43.8	91.46	130.01	-0.0278	0.1162
4	125.2	210.7	68.0	106.0	105.1	182.0	227.1	225.0	139.7	114.4	-122.0	-42.9	76.47	112.14	-0.1058	0.0901
5	117.9	208.6	54.2	70.9	104.7	196.2	252.9	246.9	157.8	87.2	-148.2	-50.7	61.64	76.38	-0.1995	0.0168
6	112.5	202.3	40.4	25.2	105.0	200.7	276.9	268.7	176.5	72.6	-171.9	-68.0	46.44	27.72	-0.2648	-0.0632
7	102.8	192.8	37.1	31.5	95.9	190.2	293.7	285.1	201.3	100.0	-197.8	-94.9	42.84	35.14	-0.1532	-0.1014
8	97.4	190.3	38.3	43.9	89.6	185.2	299.0	290.6	212.9	114.2	-209.4	-105.4	44.24	49.15	-0.1416	-0.1113
9	94.3	186.8	40.1	48.4	85.3	180.4	304.0	296.1	222.3	125.4	-218.7	-115.7	46.33	54.34	-0.1507	-0.1231

SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PO2/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	41.5	47.0	53.44	23.36	0.3406	0.5723	0.4287	0.4254	-3.78	2.49	20.84	30.08	0.1477	0.7607	0.2108	1.0647	39.59	40.13
2	44.6	49.7	52.47	20.70	0.3640	0.6010	0.4253	0.4168	-2.91	3.22	13.24	31.77	0.1647	0.7064	0.2036	1.0820	47.45	48.04
3	48.8	52.9	53.79	19.34	0.3723	0.6162	0.4150	0.3957	-0.97	5.01	8.52	34.45	0.2016	0.6951	0.2060	1.0963	52.71	53.33
4	57.2	59.9	60.99	22.12	0.3729	0.6250	0.4161	0.3393	6.14	11.81	2.08	38.87	0.3700	0.6650	0.2042	1.1205	57.26	57.94
5	63.0	70.0	70.21	35.42	0.3506	0.6142	0.4692	0.2566	13.25	18.13	4.26	34.80	0.6448	0.6579	0.1892	1.1419	53.97	54.83
6	69.5	82.8	77.11	69.53	0.3343	0.5905	0.5245	0.2119	17.80	22.05	28.47	7.58	0.7726	0.6549	0.0853	1.1593	51.29	52.30
7	68.8	80.5	79.37	71.51	0.3048	0.5597	0.5968	0.2903	17.93	21.43	23.96	7.86	0.6725	0.6121	0.0749	1.1709	51.41	52.49
8	66.8	76.6	79.60	67.27	0.2886	0.5512	0.6307	0.3308	17.30	20.54	17.85	12.34	0.6221	0.5821	0.0878	1.1760	51.65	52.75
9	64.8	74.9	79.60	67.18	0.2791	0.5396	0.6584	0.3622	16.13	19.11	16.15	12.42	0.5963	0.5542	0.0848	1.1789	50.70	51.84

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN
1	375.9	633.1	281.4	432.3	249.3	462.5	629.8	648.5	473.2	470.6	-380.5	-186.0	19.32	27.32	1.645	6.654	0.0500
2	401.2	663.5	285.3	430.7	282.1	504.7	653.9	666.5	468.7	460.1	-371.9	-161.8	19.70	27.56	-0.024	6.788	0.1000
3	410.1	679.9	270.1	412.2	308.6	540.6	677.4	684.4	457.1	436.5	-368.8	-143.7	18.73	26.63	-1.595	6.657	0.1499
4	410.7	691.2	223.1	347.9	344.9	597.3	745.1	738.2	458.3	375.3	-400.3	-140.9	15.66	22.97	-6.060	5.162	0.3000
5	386.8	684.5	177.7	232.7	343.6	643.8	829.7	810.0	517.6	286.0	-486.1	-166.2	12.62	15.64	-11.432	0.962	0.5000
6	369.2	663.6	132.4	82.7	344.7	658.4	908.6	881.7	579.2	238.1	-563.9	-223.3	9.51	5.68	-15.171	-3.621	0.7000
7	337.2	632.6	121.6	103.3	314.5	624.1	963.5	935.5	660.3	328.1	-649.0	-311.4	8.77	7.20	-8.777	-5.808	0.8500
8	319.6	624.3	125.6	143.9	293.9	607.5	980.9	953.4	698.4	374.7	-687.0	-345.9	9.06	10.07	-8.115	-6.376	0.9000
9	309.3	612.8	131.5	158.7	280.0	591.9	997.5	971.4	729.5	411.4	-717.6	-379.5	9.49	11.13	-8.632	-7.052	0.9500
		WC1/A1	WC1/A1						T02/T01	P02/P01	EFF-AD	EFF-P					
		LBM/SEC	KG/SEC								ROTOR	ROTOR					
		SQFT	SQM								%	%					
		13.11	63.96						1.0647	1.1236	52.38	53.16					

# AIRFOIL AERODYNAMIC SUMMARY PRINT

70 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 107 SPEED CODE 70 POINT NO 7

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	180.1	76.1	120.1	52.6	134.2	55.1	123.39	58.81	0.1918	0.1692
2	190.2	81.3	124.9	57.3	143.4	57.8	129.51	64.23	0.2197	0.1734
3	197.4	91.9	123.8	67.0	153.8	63.0	129.33	75.46	0.2347	0.1784
4	206.0	121.5	111.6	89.7	173.2	82.0	118.32	102.50	0.2415	0.1854
5	205.7	139.2	93.3	99.6	183.3	97.3	100.35	115.73	0.2121	0.1666
6	205.6	144.8	57.0	99.3	197.5	105.4	62.27	116.45	0.1149	0.1209
7	199.8	152.3	46.4	102.3	194.3	112.8	51.22	120.04	-0.0122	0.0261
8	197.5	153.6	56.6	102.8	189.2	114.2	62.73	120.43	-0.0500	-0.0346
9	194.6	152.8	60.3	101.6	185.0	114.2	66.90	118.84	-0.0806	-0.0821

SL	B-1	B-2	M-1	M-2	INCS	INCM	DEV	TURN	D-FAC	OMEGA-B	LOSS-P	PO2/	PO/PO	TO/TO	XEFF-A	XEFF-P
	DEGREE	DEGREE			DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	STAGE	STAGE	TOT-STG	TOT-STG
1	48.3	46.4	0.5321	0.2199	-25.88	-24.21	29.51	2.95	0.7164	0.1098	0.0272	0.9813	1.0343	1.0453	21.40	21.77
2	49.3	45.4	0.5632	0.2350	-24.29	-21.31	26.26	3.97	0.6890	0.1169	0.0301	0.9796	1.0383	1.0455	23.76	24.17
3	51.7	43.4	0.5855	0.2661	-21.27	-18.00	22.61	8.24	0.6390	0.1275	0.0346	0.9764	1.0437	1.0459	26.84	27.29
4	57.8	42.8	0.6108	0.3528	-15.30	-11.19	18.05	15.07	0.5182	0.0935	0.0272	0.9803	1.0726	1.0501	40.42	41.01
5	63.5	44.7	0.6067	0.4045	-13.24	-8.20	15.13	18.83	0.4615	0.0547	0.0166	0.9877	1.1048	1.0568	50.83	51.52
6	74.0	46.9	0.6017	0.4191	-9.19	-3.37	13.80	27.08	0.4508	0.0318	0.0099	0.9930	1.1275	1.0676	51.63	52.44
7	76.6	47.7	0.5813	0.4383	-14.19	-7.93	15.01	28.81	0.4433	0.0484	0.0156	0.9896	1.1464	1.0832	47.90	48.89
8	73.3	47.9	0.5734	0.4410	-20.55	-14.17	16.01	25.37	0.4267	0.0479	0.0156	0.9901	1.1563	1.0887	47.77	48.82
9	71.9	48.3	0.5637	0.4377	-24.93	-18.45	17.40	23.63	0.4056	0.0432	0.0142	0.9915	1.1678	1.0938	48.34	49.45

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	PCT TE	EPSI-1	EPSI-2
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	SPAN	DEGREE	DEGREE
1	591.0	249.8	394.1	172.4	440.4	180.7	25.27	12.05	0.0550	10.992	9.697
2	624.0	266.8	409.8	187.9	470.6	189.5	26.52	13.16	0.1083	12.590	9.932
3	647.8	301.7	406.3	219.8	504.6	206.7	26.49	15.45	0.1610	13.446	10.223
4	675.8	398.7	366.0	294.3	568.1	268.9	24.23	20.99	0.3151	13.838	10.624
5	674.9	456.8	306.1	326.8	601.5	319.2	20.55	23.70	0.5165	12.151	9.543
6	674.4	475.2	187.1	325.8	648.0	345.9	12.75	23.85	0.7145	6.583	6.925
7	655.5	499.8	152.1	335.7	637.6	370.2	10.49	24.59	0.8603	-0.701	1.496
8	648.0	504.0	185.9	337.2	620.8	374.6	12.85	24.67	0.9080	-2.866	-1.985
9	638.5	501.5	197.9	333.4	607.1	374.6	13.70	24.34	0.9548	-4.616	-4.701
	NCORR	WCORR	WCORR	WCORR			TO/TO	PO2/PO1	PO/PO	EFF-AD	EFF-P
	INLET	INLET	INLET	INLET			STAGE	STAGE	STAGE	STAGE	STAGE
	RPM	LBM/SEC	KG/SEC								
	8536.60	34.00	15.42				1.0647	0.9872	1.1092	46.53	47.30

## AIRFOIL AERODYNAMIC SUMMARY PRINT

RUN NO 107 SPEED CODE 70 POINT NO 11

### 70 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	135.5	182.0	99.3	110.6	92.2	144.6	192.0	197.7	140.8	122.6	-99.8	-53.1	106.11	168.72	0.0478	0.1199
2	141.4	192.9	90.3	112.0	108.8	157.0	199.3	203.2	127.9	121.2	-90.5	-46.2	97.08	111.76	0.0337	0.1254
3	143.4	200.8	83.8	106.7	116.3	170.2	206.5	208.6	123.1	113.4	-90.2	-38.4	90.64	107.78	0.0184	0.1258
4	142.1	212.1	72.8	103.1	122.0	185.3	227.1	225.0	127.9	110.5	-105.1	-39.7	79.94	107.71	-0.0331	0.1064
5	133.5	216.7	59.3	95.4	119.7	194.6	252.9	246.9	145.8	108.8	-133.2	-52.3	66.04	102.90	-0.1152	0.0365
6	127.5	215.0	48.8	57.1	117.8	207.3	277.0	268.8	166.5	83.9	-159.2	-61.5	55.17	62.94	-0.1935	-0.0683
7	120.0	205.1	47.1	38.9	110.4	201.4	293.7	285.2	189.3	92.4	-183.3	-83.8	53.57	43.45	-0.1673	-0.1093
8	112.6	201.5	48.8	53.0	101.5	194.4	299.0	290.6	203.4	109.9	-197.5	-96.3	55.43	59.41	-0.1537	-0.1167
9	108.7	197.4	54.1	60.6	94.3	187.9	304.1	296.1	216.7	124.0	-209.8	-108.2	61.47	68.07	-0.1567	-0.1269

SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-8	LOSS-P	PO2/	KEFF-A	KEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	42.8	52.7	45.07	25.74	0.4047	0.5391	0.4204	0.3632	-12.16	-5.88	23.22	19.32	0.2785	0.9615	0.2614	1.0233	15.82	16.09
2	50.3	54.7	45.05	22.53	0.4228	0.5729	0.3823	0.3599	-10.33	-4.20	15.68	22.52	0.2450	0.9181	0.2613	1.0469	30.67	31.12
3	54.2	58.1	47.09	19.96	0.4290	0.5975	0.3683	0.3373	-7.67	-1.69	9.13	27.13	0.2580	0.9415	0.2780	1.0662	40.85	41.38
4	59.2	61.0	55.30	21.16	0.4249	0.6316	0.3825	0.3290	0.45	6.12	1.11	34.14	0.2897	0.7307	0.2259	1.1110	59.85	60.45
5	63.7	63.8	66.07	28.67	0.3986	0.6429	0.4352	0.3228	9.11	13.99	-2.49	37.41	0.4230	0.4905	0.1519	1.1600	69.99	70.61
6	67.7	74.5	73.09	46.89	0.3800	0.6322	0.4963	0.2468	13.77	18.02	5.83	26.20	0.6864	0.5361	0.1364	1.1855	63.49	64.36
7	66.9	79.0	75.60	64.95	0.3571	0.5986	0.5632	0.2696	14.16	17.66	17.40	10.65	0.6913	0.5404	0.0883	1.1933	59.77	60.76
8	64.3	74.7	76.11	61.02	0.3346	0.5865	0.6044	0.3198	13.81	17.05	11.60	15.09	0.6233	0.5004	0.0946	1.2001	66.02	61.04
9	60.1	72.0	75.54	60.63	0.3226	0.5729	0.6432	0.3599	12.06	15.05	9.59	14.91	0.5885	0.4816	0.0932	1.2022	58.21	59.28

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN
1	444.7	597.2	326.0	362.7	302.5	474.4	629.9	648.6	461.9	402.4	-327.3	-174.2	21.73	22.27	2.738	6.869	0.0500
2	463.9	632.8	296.3	367.5	357.0	515.1	654.0	666.6	419.5	397.5	-297.0	-151.5	19.88	22.89	1.931	7.184	0.1000
3	470.4	659.0	275.0	349.9	381.7	558.4	677.5	684.5	403.9	372.0	-295.8	-126.1	18.56	22.07	1.052	7.208	0.1499
4	466.1	695.8	238.9	338.2	400.3	608.1	745.2	738.3	419.6	362.4	-345.0	-130.2	16.37	22.06	-1.894	6.099	0.3000
5	438.2	710.9	194.4	312.9	392.7	638.4	829.9	810.1	478.5	356.9	-437.2	-171.7	13.53	21.07	-6.598	2.089	0.5000
6	418.3	705.4	160.3	187.5	386.4	680.1	908.7	881.8	546.3	275.4	-522.3	-201.8	11.30	12.89	-11.086	-3.912	0.7000
7	393.8	672.9	154.6	127.6	362.2	660.7	963.7	935.6	621.1	303.0	-601.5	-274.9	10.97	8.90	-9.583	-6.263	0.8500
8	369.5	661.0	160.0	173.8	333.1	637.8	981.1	953.6	667.4	360.5	-648.0	-315.8	11.35	12.17	-8.807	-6.685	0.9000
9	356.6	647.7	177.4	198.8	309.3	616.5	997.7	971.5	710.9	406.9	-688.4	-355.0	12.59	13.94	-8.978	-7.273	0.9500
	WC1/A1		WC1/A1						T02/T01	P02/P01	EFF-AD	EFF-P					
	LBM/SEC		KG/SEC								ROTOR	ROTOR					
	SQFT		SQM								%	%					
	14.58		71.12						1.0622	1.1353	59.43	60.16					

# AIRFOIL AERODYNAMIC SUMMARY PRINT

70 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 107 SPEED CODE 70 POINT NO 11

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	171.3	84.7	100.8	60.6	138.5	59.2	100.34	64.19	0.1748	0.1593
2	182.0	90.5	107.1	66.2	147.2	61.7	107.80	70.44	0.1916	0.1537
3	191.5	103.4	105.3	78.3	160.0	67.5	106.98	83.76	0.1963	0.1494
4	208.0	143.4	109.0	109.8	177.1	92.2	113.59	119.92	0.1747	0.1241
5	218.0	169.1	110.5	116.2	187.9	122.8	118.20	130.02	0.1325	0.0806
6	219.9	180.9	84.1	113.0	203.2	141.2	91.51	128.50	0.0692	0.0386
7	214.5	186.9	58.7	113.4	206.3	148.5	64.63	129.35	-0.0283	-0.0293
8	211.1	184.0	70.9	110.6	198.8	147.1	78.19	125.87	-0.0634	-0.0663
9	207.6	179.1	77.3	106.4	192.7	144.0	85.37	120.72	-0.0874	-0.0950

SL	B-1	B-2	M-1	M-2	INCS	INCM	DEV	TURN	D-FAC	OMEGA-B	LOSS-P	PO2/	PO/PO	TO/TO	XEFF-A	XEFF-P
	DEGREE	DEGREE			DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	STAGE	STAGE	TOT-STG	TOT-STG
1	54.8	44.3	0.5055	0.2453	-21.19	-18.53	27.48	9.67	0.6601	0.1769	0.0453	0.9719	0.9880	1.0416	-8.31	-8.50
2	54.2	43.0	0.5390	0.2625	-19.45	-16.47	23.88	11.18	0.6320	0.1837	0.0492	0.9698	0.9938	1.0417	-4.27	-4.37
3	56.9	40.8	0.5681	0.3003	-16.03	-12.75	19.96	16.13	0.5793	0.1896	0.0537	0.9662	1.0041	1.0422	2.73	2.78
4	58.7	40.1	0.6189	0.4189	-14.50	-10.38	15.37	18.56	0.4297	0.1344	0.0408	0.9710	1.0521	1.0473	30.86	31.35
5	59.7	46.7	0.6480	0.4956	-17.04	-11.99	17.09	13.07	0.3238	0.1019	0.0307	0.9745	1.1077	1.0543	54.65	55.30
6	67.6	51.3	0.6489	0.5289	-15.62	-9.80	18.22	16.23	0.2785	0.0719	0.0205	0.9822	1.1505	1.0665	61.56	62.31
7	74.1	52.6	0.6283	0.5431	-16.66	-10.39	19.85	21.50	0.2696	0.0582	0.0169	0.9860	1.1712	1.0827	55.94	56.92
8	70.4	53.0	0.6166	0.5330	-23.49	-17.12	21.11	17.32	0.2638	0.0682	0.0199	0.9843	1.1770	1.0875	54.50	55.53
9	68.1	53.5	0.6045	0.5169	-28.73	-22.26	22.66	14.57	0.2629	0.0902	0.0264	0.9802	1.1780	1.0922	51.99	53.09

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	PCT TE	EPSI-1	EPSI-2
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	SPAN	DEGREE	DEGREE
1	561.9	277.9	330.7	198.7	454.3	194.3	20.55	13.15	0.0550	10.016	9.127
2	597.3	297.0	351.4	217.4	483.0	202.4	22.08	14.43	0.1083	10.980	8.808
3	628.3	339.2	345.4	257.0	524.8	221.3	21.91	17.16	0.1610	11.248	8.561
4	682.4	470.5	357.8	360.3	581.1	302.5	23.27	24.56	0.3151	10.010	7.112
5	715.1	554.7	362.6	381.1	616.4	403.0	24.21	26.63	0.5165	7.589	4.616
6	721.4	593.4	275.8	370.9	666.6	463.3	18.74	26.32	0.7145	3.962	2.214
7	703.8	613.1	192.7	372.1	676.9	487.3	13.24	26.49	0.8603	-1.623	-1.680
8	692.6	603.7	232.6	362.8	652.4	482.5	16.01	25.78	0.9080	-3.634	-3.798
9	681.1	587.6	253.7	349.1	632.1	472.6	17.48	24.72	0.9548	-5.009	-5.443
	NCORR	WCORR	WCORR	WCORR	TO/TO	PO2/PO1	PO/PO	EFF-AD	EFF-P		
	INLET	INLET	INLET	INLET	STAGE	STAGE	STAGE	STAGE	STAGE		
	RPM	LBM/SEC	KG/SEC					%	%		
	8537.80	37.80	17.14		1.0622	0.9774	1.1096	48.56	49.32		

## AIRFOIL AERODYNAMIC SUMMARY PRINT

50 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 107 SPEED CODE 50 POINT NO 1

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2		
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN		
1	100.3	127.6	74.7	78.8	67.0	100.4	137.2	141.2	102.5	88.7	-70.2	-40.8	84.69	86.22	0.0458	0.1207		
2	105.8	136.5	75.0	86.5	74.6	105.6	142.4	145.2	101.1	95.1	-67.8	-39.6	85.40	95.34	0.0301	0.1262		
3	107.6	143.4	68.9	85.7	82.7	114.9	147.5	149.1	94.7	92.2	-64.9	-34.1	78.70	95.10	0.0142	0.1266		
4	106.8	151.9	53.1	72.4	92.7	133.6	162.3	160.8	87.5	77.3	-69.6	-27.2	61.14	81.66	-0.0378	0.1076		
5	100.6	157.1	44.6	74.6	90.1	138.2	180.7	176.4	101.0	83.9	-90.6	-38.2	51.82	85.74	-0.1223	0.0339		
6	96.7	151.9	37.2	42.7	89.2	145.7	197.9	192.0	114.9	63.0	-108.7	-46.3	43.57	49.53	-0.2139	-0.0860		
7	90.3	139.3	35.2	29.5	83.2	136.1	209.9	203.7	131.4	73.8	-126.6	-67.6	41.32	34.37	-0.1943	-0.1214		
8	84.4	134.4	35.5	33.6	76.6	130.1	213.6	207.7	141.5	84.5	-137.0	-77.5	41.64	39.21	-0.1741	-0.1273		
9	80.4	130.1	36.8	36.4	71.5	124.9	217.3	211.6	150.3	94.0	-145.8	-86.6	43.18	42.53	-0.1654	-0.1322		
SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PO2/	%EFF-A	%EFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	41.8	52.0	43.17	27.50	0.2973	0.3768	0.3037	0.2620	-14.05	-7.78	24.98	15.66	0.2413	0.8417	0.2253	1.0118	18.13	18.28
2	44.8	50.9	42.09	24.75	0.3139	0.4036	0.3000	0.2813	-13.28	-7.16	17.29	17.35	0.1887	0.6888	0.1927	1.0225	33.48	33.69
3	50.2	53.5	43.27	21.85	0.3194	0.4245	0.2810	0.2731	-11.49	-5.51	11.03	21.41	0.1936	0.6600	0.1924	1.0330	45.27	45.53
4	60.2	61.7	52.67	20.69	0.3170	0.4501	0.2598	0.2291	-2.18	3.49	0.64	31.98	0.2595	0.6336	0.1965	1.0545	65.17	65.44
5	63.7	61.5	63.85	27.01	0.2981	0.4649	0.2993	0.2482	6.88	11.77	-4.14	36.83	0.3260	0.3045	0.0957	1.0819	80.74	80.96
6	67.6	73.6	71.32	47.12	0.2863	0.4474	0.3403	0.1856	12.01	16.26	6.07	24.20	0.6281	0.4442	0.1125	1.0840	67.40	67.77
7	67.2	77.7	74.57	66.32	0.2674	0.4087	0.3889	0.2164	13.12	16.63	18.77	8.24	0.6005	0.4570	0.0708	1.0798	60.57	61.01
8	65.2	75.5	75.52	66.45	0.2496	0.3938	0.4184	0.2475	13.22	16.46	17.04	9.06	0.5486	0.4305	0.0671	1.0792	59.27	59.72
9	62.8	73.7	75.85	67.12	0.2376	0.3808	0.4442	0.2749	12.38	15.36	16.09	8.73	0.5083	0.4082	0.0626	1.0784	57.89	58.34
SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE	
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN	
1	329.1	418.7	244.9	258.5	219.8	329.4	450.0	463.4	336.2	291.1	-230.2	-134.0	17.35	17.66	2.625	6.913	0.0500	
2	347.1	447.7	246.1	283.7	244.8	346.4	467.3	476.3	331.8	312.0	-222.5	-129.9	17.49	19.53	1.725	7.230	0.1000	
3	353.1	470.4	226.1	281.2	271.2	377.1	484.1	489.1	310.6	302.7	-212.9	-111.9	16.12	19.48	0.811	7.256	0.1499	
4	350.5	498.5	174.2	237.5	304.1	438.3	532.5	527.5	287.2	253.7	-228.3	-89.2	12.52	16.72	-2.167	6.163	0.3000	
5	330.0	515.4	146.4	244.9	295.7	453.5	592.9	578.8	331.3	275.1	-297.2	-125.3	10.61	17.56	-7.010	1.941	0.5000	
6	317.2	498.3	122.1	140.2	292.7	478.2	649.2	630.0	376.9	206.7	-356.5	-151.9	8.92	10.14	-12.254	-4.925	0.7000	
7	296.4	457.0	115.4	96.7	273.0	446.7	688.5	668.5	431.2	242.0	-415.5	-221.8	8.46	7.04	-11.133	-6.953	0.8500	
8	277.0	441.0	116.3	110.2	251.4	427.0	701.0	681.3	464.3	277.2	-449.5	-254.3	8.53	8.03	-9.975	-7.292	0.9000	
9	263.8	426.9	120.6	119.4	234.6	409.9	712.8	694.1	493.2	308.3	-478.2	-284.2	8.84	8.71	-9.477	-7.577	0.9500	
	WC1/A1	WC1/A1							T02/T01	P02/P01	EFF-AD	EFF-P						
	LBM/SEC	KG/SEC									ROTOR	ROTOR						
	SQFT	SQM									%	%						
	11.38	55.52							1.0273	1.0626	64.28	64.61						

# AIRFOIL AERODYNAMIC SUMMARY PRINT

50 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 107 SPEED CODE 50 POINT NO 1

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	119.7	66.2	70.6	46.4	96.6	47.2	77.80	52.26	0.1704	0.1591
2	128.0	70.6	80.7	50.6	99.4	49.2	89.34	57.15	0.1880	0.1539
3	136.0	79.6	84.6	59.1	106.5	53.3	94.16	66.96	0.1974	0.1508
4	149.2	109.2	80.3	82.2	125.8	72.0	90.37	94.18	0.1855	0.1355
5	157.2	126.4	83.3	92.5	133.4	86.2	95.14	107.58	0.1329	0.0887
6	156.9	133.4	64.1	89.9	143.2	98.6	73.97	105.48	0.0725	0.0434
7	146.4	129.2	42.5	81.4	140.1	100.4	49.24	95.47	-0.0221	-0.0200
8	141.5	123.9	46.2	76.9	133.7	97.2	53.49	90.11	-0.0562	-0.0587
9	137.1	118.2	48.9	72.2	128.1	93.6	56.66	84.53	-0.0838	-0.0905

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	XEFF-A TOT-STG	XEFF-P TOT-STG
1	53.9	45.5	0.3528	0.1934	-21.34	-18.67	28.63	8.37	0.5819	0.2181	0.0548	0.9822	0.9901	1.0184	-15.43	-15.59
2	51.1	44.2	0.3779	0.2064	-22.50	-19.52	25.09	6.93	0.5541	0.2276	0.0598	0.9805	0.9931	1.0185	-10.70	-10.81
3	51.8	42.1	0.4021	0.2331	-21.13	-17.85	21.28	9.71	0.4988	0.2226	0.0618	0.9791	0.9977	1.0186	-3.54	-3.58
4	57.8	41.3	0.4420	0.3208	-15.36	-11.75	16.61	16.45	0.3505	0.1224	0.0365	0.9856	1.0259	1.0216	33.81	34.05
5	58.2	43.1	0.4657	0.3721	-18.56	-13.81	13.49	15.15	0.2912	0.0835	0.0261	0.9888	1.0537	1.0247	61.07	61.37
6	65.9	47.6	0.4633	0.3922	-17.26	-11.44	14.53	18.28	0.2711	0.0997	0.0307	0.9858	1.0723	1.0303	66.58	66.93
7	73.1	50.9	0.4304	0.3783	-17.66	-11.39	18.18	22.17	0.2869	0.0998	0.0301	0.9872	1.0669	1.0357	52.47	52.91
8	70.9	51.6	0.4152	0.3623	-22.93	-16.55	19.69	19.31	0.2786	0.1000	0.0302	0.9883	1.0673	1.0367	51.18	51.63
9	69.1	52.3	0.4019	0.3450	-27.75	-21.28	21.44	16.77	0.2740	0.1087	0.0327	0.9884	1.0660	1.0376	49.10	49.56

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	392.7	217.1	231.8	152.2	317.0	154.9	15.94	10.70	0.0550	9.764	9.115
2	420.0	231.6	264.6	166.1	326.1	161.3	18.30	11.70	0.1083	10.769	8.818
3	446.2	261.2	277.6	194.0	349.4	174.9	19.28	13.71	0.1610	11.308	8.640
4	489.6	358.3	263.3	269.6	412.8	236.1	18.51	19.29	0.3151	10.628	7.766
5	515.9	414.9	273.3	303.5	437.5	282.8	19.49	22.03	0.5165	7.613	5.084
6	514.8	437.8	210.5	295.0	469.9	323.4	15.15	21.60	0.7145	4.156	2.487
7	480.4	423.9	139.5	266.9	459.7	329.3	10.08	19.55	0.8603	-1.268	-1.146
8	464.2	406.6	151.5	252.2	438.8	318.9	10.96	18.46	0.9080	-3.221	-3.361
9	449.9	387.8	160.4	236.9	420.3	307.0	11.60	17.31	0.9548	-4.801	-5.184
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1 STAGE	PO/PO STAGE	EFF-AD STAGE	EFF-P STAGE
	6100.10	29.51	13.38				1.0273	0.9863	1.0480	49.56	49.91



## AIRFOIL AERODYNAMIC SUMMARY PRINT

50 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 107 SPEED CODE 50 POINT NO 3

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2		
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAM	RADIAM		
1	93.3	137.5	69.9	92.5	61.7	101.8	137.2	141.2	102.9	100.5	-75.4	-39.4	80.24	102.37	0.0345	0.1173		
2	98.3	144.8	70.2	94.7	68.8	109.4	142.4	145.2	101.8	101.2	-73.6	-35.7	80.82	105.56	0.0107	0.1202		
3	99.8	148.9	64.7	89.6	76.0	119.0	147.5	149.1	96.5	94.5	-71.6	-30.1	74.61	100.34	-0.0117	0.1185		
4	98.8	154.6	50.3	78.1	85.0	133.4	162.3	160.8	92.2	82.7	-77.3	-27.4	58.48	86.76	-0.0797	0.0903		
5	92.9	154.8	41.2	55.9	83.2	144.4	180.7	176.4	105.8	64.4	-97.5	-32.0	48.23	64.26	-0.1656	0.0110		
6	89.2	150.2	33.5	32.6	82.7	146.6	197.9	192.0	120.0	55.9	-115.2	-45.4	39.52	37.95	-0.2147	-0.0730		
7	82.2	142.2	31.0	23.5	76.1	140.2	209.9	203.7	137.3	67.7	-133.8	-63.5	36.65	27.60	-0.1411	-0.0974		
8	77.0	140.1	31.5	34.4	70.3	135.8	213.6	207.7	146.8	79.7	-143.3	-71.8	37.18	40.46	-0.1326	-0.1007		
9	73.8	137.5	33.1	43.6	66.0	130.4	217.3	211.6	154.9	92.1	-151.3	-81.1	39.08	51.31	-0.1448	-0.1159		
SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PO2/	%EFF-A	%EFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE	TOTAL	TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	41.4	47.9	47.09	23.17	0.2762	0.4065	0.3046	0.2972	-10.13	-3.85	20.65	23.92	0.1477	0.6802	0.1887	1.0299	40.58	40.84
2	44.4	49.3	46.32	20.76	0.2913	0.4284	0.3015	0.2996	-9.06	-2.93	13.31	25.56	0.1449	0.5953	0.1715	1.0393	50.45	50.73
3	49.6	53.2	47.88	18.68	0.2957	0.4409	0.2859	0.2797	-6.87	-0.89	7.86	29.21	0.1752	0.6084	0.1811	1.0471	56.83	57.12
4	59.4	59.8	57.01	19.37	0.2927	0.4576	0.2733	0.2449	2.16	7.83	-0.67	37.63	0.2739	0.5250	0.1642	1.0663	70.05	70.32
5	63.9	68.8	67.29	29.71	0.2749	0.4564	0.3133	0.1899	10.32	15.21	-1.45	37.58	0.5887	0.5675	0.1739	1.0828	65.83	66.21
6	68.2	77.4	73.98	54.13	0.2640	0.4411	0.3549	0.1642	14.67	18.92	13.07	19.85	0.7242	0.5458	0.1191	1.0907	62.70	63.17
7	67.8	80.4	76.91	69.52	0.2428	0.4163	0.4058	0.1983	15.47	18.97	21.97	7.39	0.6711	0.5251	0.0709	1.0941	60.78	61.29
8	65.8	75.7	77.56	64.22	0.2275	0.4097	0.4334	0.2329	15.26	18.50	14.81	13.34	0.6038	0.4819	0.0818	1.0978	61.65	62.16
9	63.3	71.4	77.64	61.60	0.2173	0.4016	0.4572	0.2688	14.17	17.15	10.56	16.04	0.5563	0.4378	0.0822	1.1011	61.34	61.87
SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE	
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN	
1	306.1	451.3	229.5	303.4	202.5	334.0	450.0	463.4	337.6	329.9	-247.5	-129.4	16.43	20.97	1.977	6.722	0.0500	
2	322.5	474.9	230.4	310.8	225.7	359.1	467.3	476.3	333.9	332.2	-241.6	-117.2	16.55	21.62	0.611	6.890	0.1000	
3	327.4	488.6	212.2	293.9	249.3	390.4	484.1	489.1	316.5	310.0	-234.8	-98.7	15.28	20.55	-0.670	6.787	0.1499	
4	324.1	507.2	165.1	256.2	278.9	437.8	532.5	527.5	302.6	271.4	-253.6	-89.8	11.98	18.18	-4.569	5.176	0.3000	
5	304.7	508.0	135.2	183.4	273.0	473.7	592.9	578.8	347.3	211.4	-319.9	-105.1	9.88	13.16	-9.487	0.628	0.5000	
6	292.8	492.8	110.0	107.0	271.3	481.1	649.2	630.1	393.6	183.4	-377.9	-149.0	8.09	7.77	-12.299	-4.181	0.7000	
7	269.6	466.5	101.7	77.2	249.7	460.1	688.5	668.5	450.5	222.2	-438.9	-208.4	7.51	5.65	-8.082	-5.578	0.8500	
8	252.7	459.7	103.2	112.9	230.7	445.6	701.0	681.3	481.5	261.3	-470.3	-235.7	7.62	8.23	-7.596	-5.772	0.9000	
9	242.1	451.3	108.5	143.0	216.4	428.0	712.8	594.1	508.1	302.1	-496.4	-266.1	8.00	10.51	-8.295	-6.643	0.9500	
	WCI/A1	WCI/A1							TO2/TO1	PO2/PO1	EFF-AD	EFF-P						
	LBM/SEC	KG/SEC									ROTOR	ROTOR						
	SQFT	SQM									%	%						
	10.57	51.60							1.0313	1.0697	62.12	62.49						

# AIRFOIL AERODYNAMIC SUMMARY PRINT

50 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 107 SPEED CODE 50 POINT NO 3

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	127.3	59.0	82.0	40.8	97.4	42.6	91.53	47.25	0.1877	0.1674
2	135.3	62.7	88.5	44.3	102.3	44.3	99.35	51.41	0.2148	0.1697
3	140.8	70.6	87.2	51.7	110.5	48.1	98.24	60.15	0.2295	0.1731
4	150.2	94.9	79.5	70.3	127.4	63.8	90.43	82.54	0.2330	0.1747
5	154.2	110.1	70.3	80.6	137.3	75.0	80.59	95.77	0.1948	0.1464
6	153.0	116.7	48.7	81.8	145.1	83.3	56.44	97.60	0.1010	0.0911
7	148.0	121.3	36.3	81.2	143.4	90.0	42.37	97.30	-0.0195	-0.0049
8	146.0	119.9	45.7	79.7	138.7	89.6	53.33	95.33	-0.0604	-0.0547
9	143.9	117.2	53.6	77.2	133.6	88.1	62.57	92.25	-0.0867	-0.0918

SL	B-1	B-2	M-1	M-2	INCS	INCM	DEV	TURN	D-FAC	OMEGA-B	LOSS-P	PO2/	PO/PO	TO/TO	XEFF-A	XEFF-P
	DEGREE	DEGREE			DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	STAGE	STAGE	TOT-STG	TOT-STG
1	50.0	46.3	0.3754	0.1720	-25.18	-22.51	29.42	3.74	0.6745	0.1436	0.0356	0.9871	1.0113	1.0208	15.52	15.67
2	49.5	45.1	0.3997	0.1829	-24.14	-21.16	26.01	4.37	0.6481	0.1510	0.0390	0.9859	1.0137	1.0208	18.66	18.83
3	52.2	43.1	0.4160	0.2062	-20.76	-17.48	22.26	9.10	0.5967	0.1577	0.0431	0.9842	1.0170	1.0209	23.12	23.31
4	58.6	42.5	0.4442	0.2778	-14.54	-10.43	17.79	16.09	0.4584	0.0873	0.0255	0.9899	1.0368	1.0234	44.39	44.67
5	63.3	43.2	0.4550	0.3227	-13.46	-8.41	13.64	20.10	0.4068	0.0604	0.0188	0.9922	1.0588	1.0268	61.52	61.83
6	71.5	45.6	0.4500	0.3410	-11.67	-5.85	12.52	25.88	0.3955	0.0520	0.0166	0.9931	1.0754	1.0350	60.03	60.45
7	75.8	47.9	0.4338	0.3536	-14.99	-8.73	15.13	27.89	0.3675	0.0410	0.0132	0.9948	1.0850	1.0407	58.06	58.55
8	71.7	48.3	0.4276	0.3491	-22.10	-15.73	16.37	23.45	0.3606	0.0484	0.0156	0.9942	1.0882	1.0430	56.91	57.43
9	68.1	48.8	0.4209	0.3407	-28.71	-22.23	17.88	19.37	0.3524	0.0663	0.0215	0.9924	1.0921	1.0452	56.42	56.97

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	PCT TE	EPSI-1	EPSI-2
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	SPAN	DEGREE	DEGREE
1	417.7	193.5	269.1	133.8	319.5	139.8	18.75	9.68	0.0550	10.753	9.590
2	444.0	205.6	290.5	145.3	335.8	145.4	20.35	10.53	0.1083	12.309	9.721
3	461.9	231.6	286.2	169.6	362.5	157.7	20.12	12.32	0.1610	13.148	9.918
4	492.7	311.4	260.9	230.6	418.0	209.2	18.52	16.90	0.3151	13.348	10.008
5	505.9	361.4	230.5	264.6	450.4	246.1	16.51	19.61	0.5165	11.162	8.390
6	502.1	382.9	159.9	268.3	475.9	273.2	11.56	19.99	0.7145	5.785	5.221
7	485.5	397.8	119.3	266.6	470.6	295.3	8.68	19.93	0.8603	-1.118	-0.279
8	479.1	393.3	149.9	261.4	455.1	293.9	10.92	19.52	0.9080	-3.463	-3.137
9	472.3	384.4	175.7	253.3	438.4	289.2	12.81	18.89	0.9548	-4.968	-5.259
	NCORR	WCORR	WCORR	WCORR			TO/TO	PO2/PO1	PO/PO	EFF-AD	EFF-P
	INLET	INLET	INLET	INLET			STAGE	STAGE	STAGE	STAGE	STAGE
	RPM	LBM/SEC	KG/SEC						X	X	
	6100.20	27.43	12.44				1.0313	0.9916	1.0607	54.27	54.66

## AIRFOIL AERODYNAMIC SUMMARY PRINT

50 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 107 SPEED CODE 50 POINT NO 4

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	87.8	137.2	66.8	94.1	57.0	99.8	137.2	141.3	104.3	102.9	-80.2	-41.5	77.21	104.86	0.0310	0.1162
2	92.9	144.0	67.5	95.2	63.9	108.0	142.4	145.2	103.6	102.2	-78.6	-37.2	78.29	106.71	0.0044	0.1180
3	94.3	147.7	62.5	90.2	70.7	116.9	147.6	149.1	99.0	95.8	-76.9	-32.2	72.60	101.58	-0.0206	0.1152
4	93.4	150.6	48.8	75.7	79.6	130.2	162.3	160.8	96.0	81.7	-82.7	-30.6	57.09	86.35	-0.0947	0.0844
5	87.9	147.8	39.4	51.9	78.5	138.3	180.7	176.4	109.5	64.4	-102.2	-38.1	46.44	59.81	-0.1834	0.0048
6	83.7	144.1	30.1	25.7	78.1	141.8	197.9	192.0	123.6	56.4	-119.8	-50.2	35.71	29.85	-0.2243	-0.0719
7	75.0	137.8	26.2	26.6	70.3	135.2	209.9	203.8	142.0	73.6	-139.6	-68.6	31.05	31.18	-0.1626	-0.1046
8	71.6	135.4	27.0	29.7	66.3	132.1	213.7	207.7	149.8	81.2	-147.3	-75.6	32.04	34.88	-0.1584	-0.1155
9	69.5	133.0	27.8	30.6	63.7	129.4	217.3	211.6	156.1	87.7	-153.6	-82.2	33.00	35.97	-0.1592	-0.1266

SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	P02/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	P01	TOTAL	TOTAL
1	40.4	46.8	50.13	23.84	0.2597	0.4053	0.3087	0.3039	-7.09	-0.81	21.32	26.29	0.1448	0.6731	0.1858	1.0326	42.16	42.43
2	43.4	48.8	49.29	21.43	0.2751	0.4258	0.3067	0.3023	-6.09	0.04	13.98	27.86	0.1536	0.6077	0.1743	1.0413	50.50	50.79
3	48.5	52.5	50.89	19.74	0.2794	0.4368	0.2933	0.2833	-3.87	2.11	8.92	31.15	0.1844	0.6140	0.1815	1.0489	56.51	56.81
4	58.6	59.9	59.55	22.06	0.2765	0.4452	0.2843	0.2414	4.69	10.37	2.01	37.49	0.3268	0.5882	0.1808	1.0627	64.04	64.36
5	63.6	69.3	69.14	36.14	0.2600	0.4351	0.3240	0.1897	12.17	17.06	4.99	33.00	0.5973	0.6034	0.1719	1.0713	59.14	59.55
6	69.2	79.7	76.09	62.78	0.2474	0.4225	0.3653	0.1653	16.78	21.03	21.73	13.31	0.7285	0.6052	0.1031	1.0825	56.58	57.07
7	69.6	78.8	79.39	68.65	0.2214	0.4025	0.4193	0.2150	17.94	21.45	21.10	10.74	0.6501	0.5501	0.0773	1.0895	56.18	56.72
8	67.8	77.2	79.61	68.39	0.2114	0.3952	0.4421	0.2370	17.31	20.55	18.98	11.21	0.6193	0.5264	0.0757	1.0915	55.57	56.12
9	66.4	76.6	79.74	69.47	0.2050	0.3877	0.4606	0.2556	16.27	19.25	18.43	10.27	0.5971	0.5062	0.0701	1.0925	54.72	55.29

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN
1	288.1	450.2	219.1	308.9	187.0	327.5	450.1	463.5	342.4	337.5	-263.1	-136.0	15.81	21.48	1.775	6.655	0.0500
2	304.9	472.4	221.5	312.4	209.5	354.3	467.3	476.3	339.9	335.4	-257.8	-122.0	16.03	21.85	0.254	6.763	0.1000
3	309.6	484.4	205.0	295.9	232.0	383.6	484.1	489.1	325.0	314.2	-252.2	-105.5	14.87	20.80	-1.178	6.602	0.1499
4	306.4	494.2	160.2	248.4	261.2	427.2	532.5	527.6	315.0	267.9	-271.3	-100.3	11.69	17.68	-5.428	4.833	0.3000
5	288.3	484.8	129.4	170.4	257.7	453.8	593.0	578.8	359.4	211.4	-335.3	-125.0	9.51	12.25	-10.509	0.273	0.5000
6	274.5	472.9	98.9	84.2	256.1	465.3	649.3	630.1	405.5	185.0	-393.2	-164.8	7.31	6.11	-12.849	-4.121	0.7000
7	246.1	452.0	85.8	87.3	230.6	443.4	688.6	668.5	466.0	241.4	-458.0	-225.1	6.36	6.39	-9.317	-5.994	0.8500
8	235.0	444.3	88.6	97.5	217.6	433.4	701.0	681.4	491.4	266.4	-483.4	-247.9	6.56	7.14	-9.075	-6.615	0.9000
9	228.0	436.3	91.2	100.4	209.0	424.6	712.9	694.2	512.1	287.6	-503.9	-269.5	6.76	7.37	-9.120	-7.252	0.9500
	WC1/A1	WC1/A1							T02/T01	P02/P01	EFF-AD	EFF-P					
	LBM/SEC	KG/SEC									ROTOR	ROTOR					
	SQFT	SQM									X	X					
	9.93	48.47									1.0312	1.0636	57.13	57.51			

AIRFOIL AERODYNAMIC SUMMARY PRINT  
 50 PERCENT DESIGN SPEED (STATOR PERFORMANCE) RUN NO 107 SPEED CODE 50 POINT NO 4

SL	V-1 M/SEC	V-2 M/SEC	VM-1 M/SEC	VM-2 M/SEC	VO-1 M/SEC	VO-2 M/SEC	RHOVM-1 KG/M2 SEC	RHOVM-2 KG/M2 SEC	EPSI-1 RADIAN	EPSI-2 RADIAN
1	126.8	55.7	83.6	38.5	95.4	40.3	93.94	44.99	0.1920	0.1700
2	134.4	59.5	88.8	41.9	100.9	42.2	100.22	49.06	0.2216	0.1748
3	139.7	67.2	87.4	49.1	109.1	45.9	98.96	57.61	0.2382	0.1803
4	147.0	89.2	78.7	66.2	124.2	59.7	89.94	78.34	0.2475	0.1876
5	146.3	101.7	66.4	74.7	130.4	69.0	76.39	89.21	0.2179	0.1671
6	146.6	105.0	42.2	74.9	140.4	73.5	48.93	89.96	0.1217	0.1181
7	142.7	110.3	36.4	76.1	138.0	79.8	42.42	91.39	-0.0037	0.0213
8	140.9	110.9	39.9	76.2	135.1	80.6	46.49	91.38	-0.0427	-0.0310
9	138.8	110.0	40.7	75.1	132.7	80.4	47.53	89.98	-0.0763	-0.0774

SL	B-1 DEGREE	B-2 DEGREE	M-1	M-2	INCS DEGREE	INCM DEGREE	DEV DEGREE	TURN DEGREE	D-FAC	OMEGA-B TOTAL	LOSS-P TOTAL	PO2/ PO1	PO/PO STAGE	TO/TO STAGE	%EFF-A TOT-STG	%EFF-P TOT-STG
1	48.9	46.3	0.3738	0.1624	-26.30	-23.63	29.47	2.57	0.6980	0.1246	0.0308	0.9890	1.0158	1.0218	20.61	20.79
2	49.0	45.3	0.3966	0.1735	-24.58	-21.60	26.22	3.71	0.6698	0.1322	0.0341	0.9879	1.0179	1.0218	23.33	23.52
3	51.8	43.2	0.4127	0.1961	-21.10	-17.83	22.42	8.60	0.6178	0.1389	0.0379	0.9864	1.0208	1.0219	26.95	27.16
4	58.3	42.4	0.4344	0.2607	-14.85	-10.74	17.66	15.91	0.4924	0.0877	0.0257	0.9901	1.0374	1.0241	43.73	44.02
5	63.6	43.1	0.4313	0.2975	-13.22	-8.18	13.51	20.46	0.4496	0.0569	0.0178	0.9930	1.0546	1.0271	56.59	56.92
6	73.4	44.6	0.4303	0.3064	-9.81	-3.99	11.52	28.74	0.4434	0.0294	0.0096	0.9965	1.0655	1.0322	56.81	57.20
7	75.2	46.3	0.4177	0.3210	-15.55	-9.29	13.58	28.88	0.4323	0.0452	0.0149	0.9947	1.0765	1.0404	52.79	53.29
8	73.5	46.5	0.4117	0.3223	-20.33	-13.95	14.62	26.98	0.4193	0.0452	0.0151	0.9948	1.0817	1.0433	52.45	52.99
9	72.9	46.9	0.4052	0.3193	-23.94	-17.46	16.01	26.01	0.4050	0.0448	0.0151	0.9951	1.0866	1.0462	52.08	52.65

SL	V-1 FT/SEC	V-2 FT/SEC	VM-1 FT/SEC	VM-2 FT/SEC	VO-1 FT/SEC	VO-2 FT/SEC	RHOVM-1 LBM/FT2SEC	RHOVM-2 LBM/FT2SEC	PCT TE SPAN	EPSI-1 DEGREE	EPSI-2 DEGREE
1	416.2	182.8	274.4	126.3	312.9	132.2	19.24	9.21	0.0550	11.001	9.741
2	440.9	195.2	291.3	137.5	331.0	138.5	20.53	10.05	0.1083	12.697	10.013
3	458.5	220.5	286.6	161.1	357.8	150.5	20.27	11.80	0.1610	13.650	10.329
4	482.4	292.6	258.3	217.4	407.4	195.8	18.42	16.04	0.3151	14.179	10.750
5	480.2	333.7	217.8	245.2	427.9	226.3	15.64	18.27	0.5165	12.487	9.574
6	480.9	344.4	138.5	245.9	460.5	241.1	10.02	18.42	0.7145	5.970	6.764
7	468.3	361.9	119.5	249.7	452.8	261.9	8.69	18.72	0.8603	-0.213	1.221
8	462.2	363.8	130.8	249.9	443.3	264.4	9.52	18.71	0.9080	-2.444	-1.778
9	455.5	360.9	133.6	246.4	435.5	263.7	9.74	18.43	0.9548	-4.371	-4.435
	NCORR INLET RPM	WCORR INLET LBM/SEC	WCORR INLET KG/SEC				TO/TO STAGE	PO2/PO1	PO/PO STAGE	EFF-AD STAGE %	EFF-P STAGE %
	6100.70	25.76	11.68				1.0312	0.9931	1.0563	50.64	51.02

## AIRFOIL AERODYNAMIC SUMMARY PRINT

50 PERCENT DESIGN SPEED (ROTOR PERFORMANCE)

RUN NO 107 SPEED CODE 50 POINT NO 5

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2		
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN		
1	81.7	147.2	62.3	106.3	52.8	101.8	137.2	141.3	104.9	113.4	-84.4	-39.5	72.37	117.83	0.0276	0.1047		
2	87.4	152.8	63.5	104.1	60.0	111.9	142.5	145.2	104.1	109.3	-82.4	-33.3	73.97	116.07	-0.0008	0.0961		
3	89.0	155.3	59.0	97.9	66.7	120.6	147.6	149.1	100.1	102.0	-80.9	-28.5	68.82	109.70	-0.0271	0.0844		
4	88.5	156.3	46.4	80.6	75.4	133.9	162.4	160.8	98.6	85.0	-87.0	-26.9	54.47	91.29	-0.1045	0.0344		
5	83.4	156.2	37.4	55.2	74.6	146.1	180.8	176.5	112.6	63.0	-106.2	-30.4	44.21	63.24	-0.1937	-0.0690		
6	79.4	152.3	28.4	25.8	74.2	150.1	198.0	192.1	127.0	49.3	-123.8	-42.0	33.79	29.84	-0.2397	-0.1273		
7	70.5	144.9	24.3	28.3	66.2	142.1	209.9	203.8	145.8	67.9	-143.7	-61.8	28.93	33.00	-0.1994	-0.1295		
8	67.1	142.0	25.1	28.3	62.2	139.2	213.7	207.7	153.6	74.2	-151.5	-68.6	29.92	33.08	-0.1854	-0.1349		
9	65.0	139.4	25.7	28.0	59.7	136.6	217.3	211.6	159.8	80.1	-157.7	-75.1	30.65	32.72	-0.1725	-0.1368		
SL	B-1	B-2	B'-1	B'-2	M-1	M-2	M'-1	M'-2	INCS	INCM	DEV	TURN	D FAC	OMEGA-B	LOSS-P	PO2/	XEFF-A	XEFF-P
	DEGREE	DEGREE	DEGREE	DEGREE					DEGREE	DEGREE	DEGREE	DEGREE	TOTAL	TOTAL	TOTAL	PO1	TOTAL	TOTAL
1	40.2	43.8	53.50	20.44	0.2413	0.4353	0.3101	0.3354	-3.72	2.55	17.92	33.06	0.0667	0.6628	0.1874	1.0419	48.21	48.50
2	43.3	47.2	52.35	17.81	0.2585	0.4523	0.3078	0.3235	-3.02	3.10	10.36	34.54	0.1000	0.6463	0.1896	1.0497	53.60	53.92
3	48.5	51.0	53.91	16.29	0.2634	0.4597	0.2962	0.3019	-0.84	5.14	5.47	37.63	0.1453	0.6751	0.2036	1.0561	57.19	57.53
4	58.5	59.0	62.05	18.49	0.2618	0.4616	0.2917	0.2510	7.20	12.87	-1.55	43.56	0.3434	0.7008	0.2204	1.0676	59.73	60.11
5	63.7	69.3	70.85	28.78	0.2467	0.4593	0.3328	0.1854	13.89	18.77	-2.37	42.07	0.6564	0.7044	0.2178	1.0829	56.97	57.46
6	69.4	80.2	77.30	58.45	0.2347	0.4456	0.3752	0.1442	17.99	22.24	17.39	18.85	0.8249	0.6923	0.1349	1.0962	54.79	55.38
7	70.0	78.7	80.47	65.28	0.2081	0.4222	0.4302	0.1980	19.02	22.53	17.73	15.19	0.7352	0.6241	0.1007	1.1032	53.87	54.50
8	68.1	78.4	80.61	67.47	0.1980	0.4133	0.4530	0.2159	18.31	21.55	18.05	13.15	0.7101	0.6077	0.0909	1.1041	52.82	53.46
9	66.7	78.4	80.74	69.50	0.1916	0.4053	0.4712	0.2329	17.27	20.25	18.47	11.24	0.6830	0.5880	0.0812	1.1045	52.31	52.97
SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	U-1	U-2	V'-1	V'-2	VO'-1	VO'-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2	PCT	TE
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	DEGREE	DEGREE	SPAN	
1	267.9	482.9	204.4	348.8	173.2	333.9	450.2	463.6	344.3	372.1	-277.0	-129.7	14.82	24.13	1.581	6.000	0.0500	
2	286.7	501.4	208.4	341.6	197.0	367.1	467.5	476.4	341.5	358.7	-270.5	-109.4	15.15	23.77	-0.045	5.507	0.1000	
3	292.1	509.7	193.4	321.3	218.8	395.6	484.3	489.2	328.4	334.7	-265.4	-93.6	14.09	22.47	-1.555	4.835	0.1499	
4	290.3	512.7	152.2	264.4	247.2	439.3	532.7	527.7	323.5	278.8	-285.4	-88.4	11.16	18.70	-5.985	1.973	0.3000	
5	273.8	512.4	122.7	181.2	244.7	479.3	593.1	579.0	369.4	206.9	-348.4	-99.8	9.05	12.95	-11.099	-3.954	0.5000	
6	260.7	499.6	93.3	84.5	243.4	492.4	649.5	630.3	416.7	161.7	-406.1	-137.9	6.92	6.11	-13.732	-7.291	0.7000	
7	231.3	475.3	79.8	92.8	217.2	466.1	688.8	668.7	478.3	222.9	-471.6	-202.6	5.92	6.76	-11.427	-7.419	0.8500	
8	220.2	466.0	82.5	92.9	204.2	456.6	701.2	681.6	503.9	243.4	-497.1	-224.9	6.13	6.77	-10.624	-7.728	0.9000	
9	213.2	457.4	84.5	91.7	195.8	448.1	713.1	694.4	524.2	262.8	-517.3	-246.3	6.28	6.70	-9.884	-7.841	0.9500	
	WC1/A1	WC1/A1							T02/T01	P02/P01	EFF-AD	EFF-P						
	LBM/SEC	KG/SEC									ROTOR	ROTOR						
	SQFT	SQM									%	%						
	9.39	45.81							1.0359	1.0718	55.81	56.25						

# AIRFOIL AERODYNAMIC SUMMARY PRINT

50 PERCENT DESIGN SPEED (STATOR PERFORMANCE)

RUN NO 107 SPEED CODE 50 POINT NO 5

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	EPSI-1	EPSI-2
	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	M/SEC	KG/M2 SEC	KG/M2 SEC	RADIAN	RADIAN
1	133.7	50.5	91.5	36.2	97.4	35.2	102.92	42.83	0.2036	0.1753
2	140.8	54.6	93.2	39.3	105.5	37.9	105.26	46.52	0.2407	0.1851
3	145.2	62.6	89.8	45.2	114.1	43.2	101.71	53.68	0.2606	0.1950
4	150.3	83.5	78.0	61.6	128.5	56.3	88.88	73.65	0.2814	0.2128
5	152.5	94.1	64.0	68.4	138.5	64.6	73.38	82.33	0.2705	0.2012
6	153.5	98.0	36.4	69.6	149.1	68.9	42.03	84.19	0.1732	0.1582
7	148.4	105.8	32.0	73.6	144.9	76.0	37.15	89.03	0.0173	0.0616
8	146.0	107.7	32.4	74.6	142.3	77.7	37.65	90.09	-0.0263	0.0001
9	143.7	107.7	32.0	74.1	140.1	78.1	37.25	89.41	-0.0677	-0.0612

SL	B-1	B-2	M-1	M-2	INCS	INCM	DEV	TURN	D-FAC	OMEGA-B	LOSS-P	PO2/	PO/PO	TO/TO	XEFF-A	XEFF-P
	DEGREE	DEGREE			DEGREE	DEGREE	DEGREE	DEGREE		TOTAL	TOTAL	PO1	STAGE	STAGE	TOT-STG	TOT-STG
1	47.0	44.3	0.3941	0.1468	-28.20	-25.53	27.39	2.75	0.7679	0.0802	0.0206	0.9922	1.0285	1.0242	33.36	33.63
2	49.0	44.2	0.4154	0.1589	-24.58	-21.60	25.08	4.86	0.7357	0.0868	0.0228	0.9914	1.0304	1.0243	35.41	35.68
3	52.5	44.0	0.4287	0.1822	-20.46	-17.18	23.18	8.48	0.6773	0.0925	0.0249	0.9903	1.0328	1.0246	37.76	38.05
4	59.7	43.0	0.4437	0.2436	-13.50	-9.39	18.23	16.69	0.5589	0.0579	0.0168	0.9931	1.0469	1.0270	48.82	49.15
5	66.0	43.9	0.4488	0.2743	-10.79	-5.74	14.37	22.04	0.5276	0.0358	0.0110	0.9955	1.0605	1.0306	55.46	55.84
6	76.5	45.1	0.4495	0.2850	-6.70	-0.88	11.94	31.43	0.5343	0.0423	0.0137	0.9945	1.0717	1.0371	53.95	54.40
7	77.5	45.9	0.4331	0.3067	-13.21	-6.94	13.14	31.66	0.5196	0.0581	0.0194	0.9925	1.0859	1.0470	50.73	51.30
8	77.1	46.1	0.4253	0.3118	-16.70	-10.32	14.16	31.07	0.5008	0.0518	0.0174	0.9935	1.0924	1.0507	50.51	51.13
9	77.1	46.4	0.4182	0.3113	-19.74	-13.26	15.55	30.68	0.4768	0.0364	0.0124	0.9957	1.0992	1.0542	50.62	51.28

SL	V-1	V-2	VM-1	VM-2	VO-1	VO-2	RHOVM-1	RHOVM-2	PCT TE	EPSI-1	EPSI-2
	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	FT/SEC	LBM/FT2SEC	LBM/FT2SEC	SPAN	DEGREE	DEGREE
1	438.6	165.6	300.3	118.7	319.6	115.4	21.08	8.77	0.0550	11.666	10.046
2	461.8	179.1	305.9	128.8	346.0	124.4	21.56	9.53	0.1083	13.789	10.603
3	476.5	205.3	294.7	148.3	374.4	141.9	20.83	10.99	0.1610	14.929	11.175
4	493.2	274.0	255.8	202.2	421.7	184.9	18.20	15.08	0.3151	16.125	12.191
5	500.5	308.6	209.9	224.3	454.3	212.0	15.03	16.86	0.5165	15.500	11.527
6	503.5	321.4	119.3	228.5	489.2	226.1	8.61	17.24	0.7145	9.925	9.066
7	487.0	347.1	104.9	241.6	475.6	249.2	7.61	18.24	0.8603	0.993	3.530
8	478.9	353.4	106.2	244.7	467.0	254.9	7.71	18.45	0.9080	-1.508	0.007
9	471.4	353.4	104.9	243.2	459.6	256.4	7.63	18.31	0.9548	-3.881	-3.508
	NCORR	WCORR	WCORR	WCORR			TO/TO	PO2/PO1	PO/PO	EFF-AD	EFF-P
	INLET	INLET	INLET	INLET			STAGE	STAGE	STAGE	STAGE	STAGE
	RPM	LBM/SEC	KG/SEC						%	%	
	6102.50	24.35	11.04				1.0359	0.9939	1.0652	50.84	51.29